

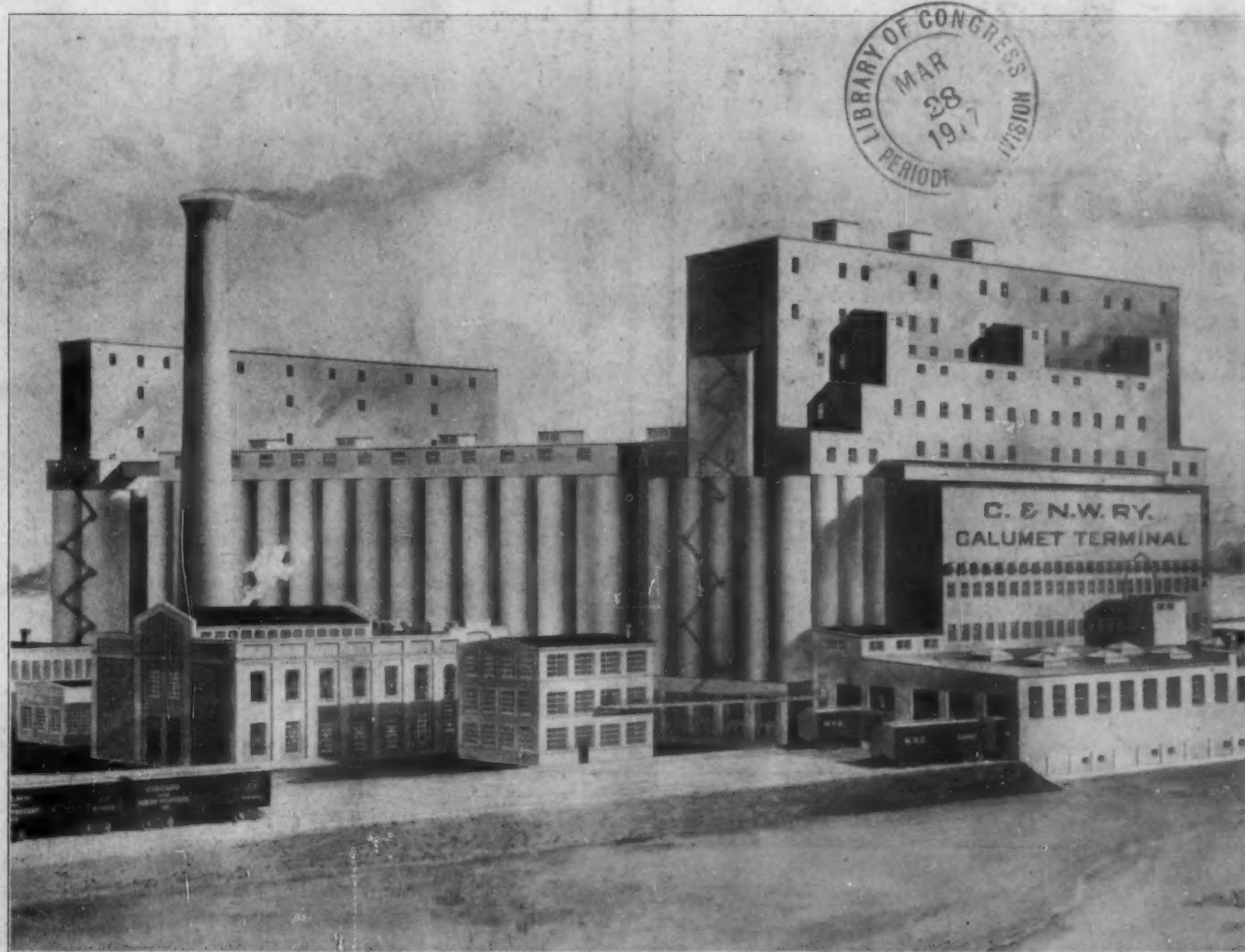
# Rock Products and BUILDING MATERIALS

INCORPORATING DEALERS BUILDING MATERIAL RECORD

Volume XIX

CHICAGO, MARCH 22, 1917

Number 10



Main buildings of the Calumet Terminal Elevator of the Chicago & Northwestern Railway Co., being constructed for the Armour Grain Co. It will be, when completed, the largest single unit grain elevator in the world—10,000,000 bushels storage capacity. Materials of construction: 100,000 yards of concrete; 1,800 tons of reinforcing steel; 5,500 tons of structural steel. Cost, \$3,500,000. Designing engineers, John S. Metcalf Co., Ltd., Chicago. Builders: Witherspoon-Englar Co., Monadnock Block, Chicago, and Grant Smith & Co., Chicago.

**Giant** BELT for Your Drives  
**Granite** BELT for Your Elevator  
**Supremo** BELT for Your Conveyors

WHY? ASK US.

**Revere Rubber Co.**

BOSTON NEW YORK CHICAGO NEW ORLEANS PHILADELPHIA



**"PENNSYLVANIA"**

**Hammer Crushers** For Crushing and Pulverizing Lime  
 Limestone, Gypsum, Marl, Shale, Etc.  
 Main Frame of Steel, "Ball and Socket" Self-aligning Bearings;  
 forged Steel Shaft; Steel Wear Liners; Cage adjustable by hand  
 wheel while Crusher is running.  
 No other hammer Crusher has such a big Safety Factor.

**Pennsylvania Crusher Co.**

New York

PHILADELPHIA

Pittsburg

**Penn-Allen Portland Cement**

ESTABLISHED 1904

**PENN-ALLEN CEMENT COMPANY**

General Office: Allentown, Pa.

Works: Penn-Allen, Nazareth, Pa.

**Clinchfield Service**

Stands Behind

**Clinchfield  
Portland Cement**

In addition to getting a cement of the highest  
 quality and uniformity you get a co-operative  
 service in the handling of orders and ship-  
 ments that means money saved on your work.

*A Trial Order Will Convince You.*



**CLINCHFIELD PORTLAND  
CEMENT CORPORATION**

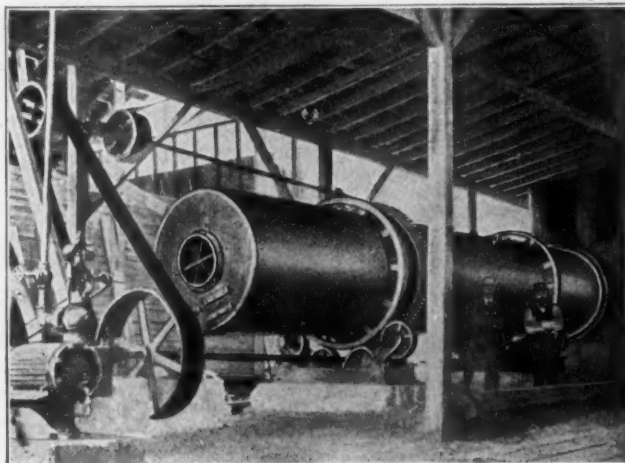
Sales Offices and Mills  
 KINGSFORD, TENNESSEE  
 Branch Sales Offices:

Charlotte, N. C., 908 Commercial Bank Building  
 Cincinnati, O., 1305 Union Trust Building  
 Savannah, Ga., 413-415 Amer. Bk. & Trust Bldg.

**RUGGLES-COLES DRYERS**

STATIONARY AND PORTABLE

*"Built to Dry at the Lowest Ultimate Cost"*



Seven different types of dryers in many sizes and  
 special dryers designed and built to meet unusual con-  
 ditions. We are now drying 67 kinds of materials,  
 among them sand, rock, gravel, gypsum, coal, clay, etc.

Our many years of experience is at your service

**Ruggles-Coles Engineering Co.**

Eastern Office:  
 60 Church St.  
 New York City

Works: York, Pa.

Western Office:  
 322 S. Michigan Ave.  
 Chicago, Ill.

Daily Capacity  
 9000 Barrels



Quality  
 Quantity  
 Service

**MORE THAN FIFTEEN YEARS OF SATISFACTION**

FOUR PLANTS:

ALPENA, DETROIT, WYANDOTTE and CLEVELAND

**HURON and WYANDOTTE**

Great Water and Rail Facilities  
 Best Serve the Entire Middle West

EVERY BARREL TESTED AND GUARANTEED

SOLD BY THE BEST DEALERS

USED BY THE BEST BUILDERS

**Main Offices: 1525 Ford Building, Detroit, Mich.**

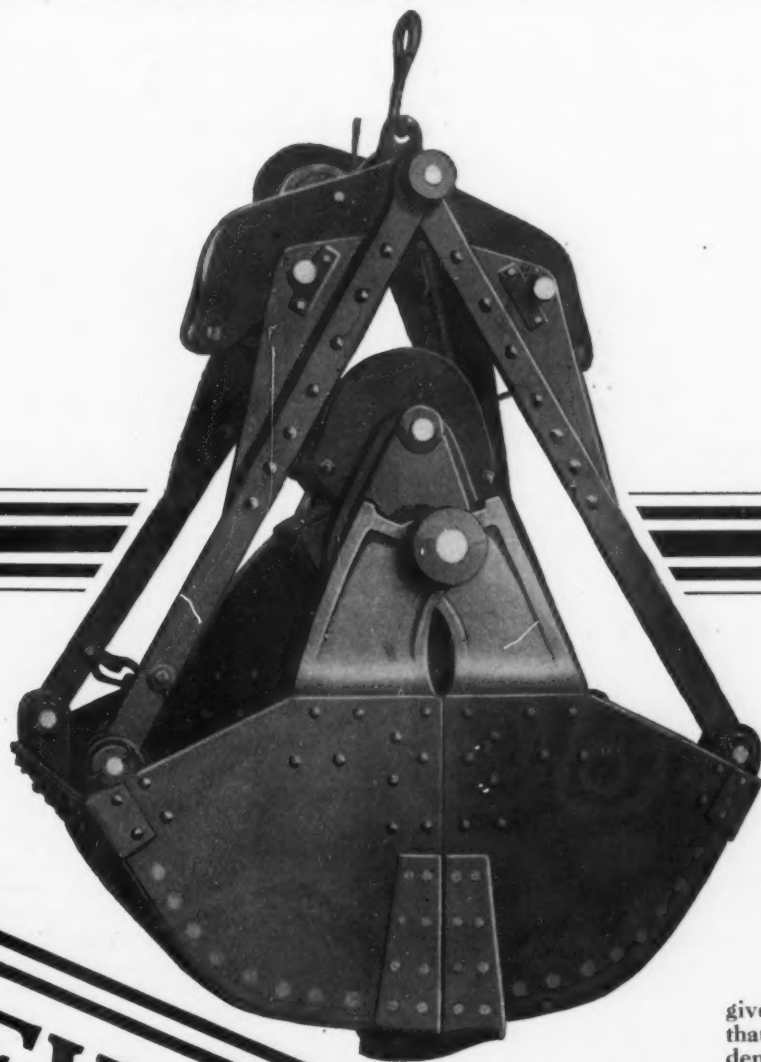
Daily Capacity  
 9000 Barrels



Quality  
 Quantity  
 Service

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS





### Lakewood Clam Shell Buckets

give you the kind of service that swift, economical results demand. They open and close quickly, and have a powerful grab.

If you appreciate speed and economy, specify a "Lakewood."

# LAKEWOOD BUCKETS

*It requires just as much power and time for a bucket to grab part of a load as it does for it to grab a full one. The value of an excavating bucket depends upon its ability to take a large load at each grab.*

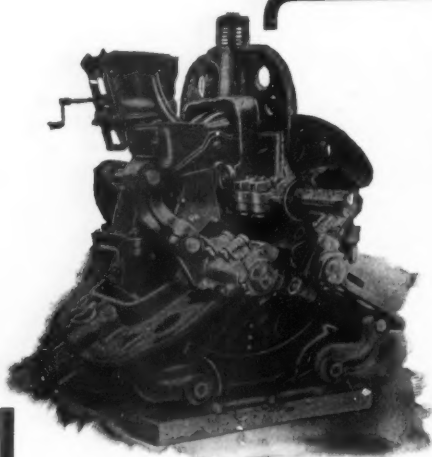
*Lost or wasted energy is unknown in the operation of Lakewood Buckets. A full capacity load is always assured.*

Lakewood Buckets are made in different weights for different classes of service.

*Write for a Catalog of the Lakewood Line*

**The Lakewood Engineering Co.**  
Cleveland, Ohio

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS



# MAXECON

Means MAXimum of ECONomy

Years of experience with the assistance of our hundreds of customers has found THE SOLUTION OF GRINDING HARD MATERIALS. The MAXECON PULVERIZER combines highest EFFICIENCY, greatest DURABILITY and assured RELIABILITY, Uses the LEAST HORSE POWER per capacity. Embodies the features of our Kent Mill with improvements that make it MAXECON.

**WE DO NOT CLAIM ALL of the CREDIT for this achievement**

We have enjoyed the valuable suggestions of the engineers of the Universal Portland Cement Co. (U. S. Steel Corp.), Sandusky P. C. Co., Chicago Portland C. Co., Marquette Cement Mfg. Co., Western P. C. Co., Cowham Engineering Co., Ironton P. C. Co., Alpena P. C. Co., Castalia P. C. Co., Pennsylvania P. C. Co., and many other patrons.

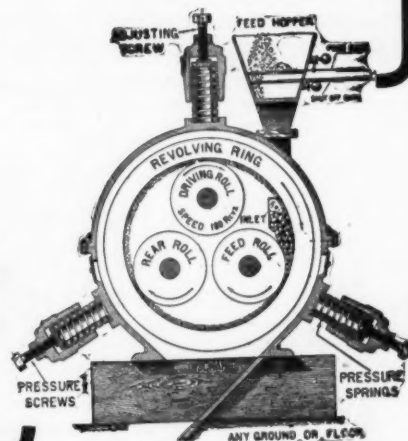
## THE RING WOBBLES

The FREE WOBBLING POUNDING RING instantly and Automatically ADAPTS its position to the variations of work.

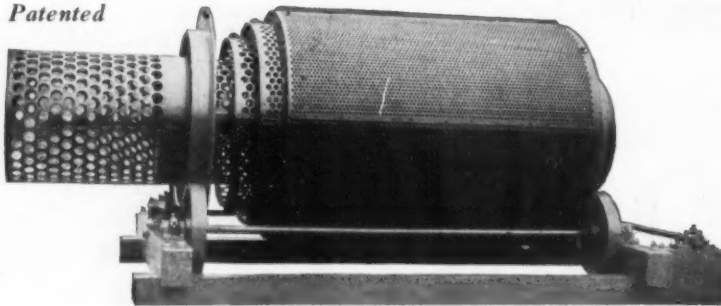
Its GRINDING ACTION is DIFFERENT than any other; besides the STRAIGHT rolling action of the rolls, the SIDE to SIDE motion of the ring makes the material subject to TWO crushing forces and DOUBLE OUTPUT results.

### KENT MILL CO.

10 RAPELYEA ST., BOROUGH OF BROOKLYN, N. Y. CITY  
LONDON, W. C., 31 HIGH HOLBORN  
BERLIN-HOHENSCHOENHAUSEN



Patented



**CAPACITY**—The O'Laughlin Screen is made in several sizes to suit the amount of crushed stone, gravel, sand, etc., to be screened.

**MATERIAL USED IN THE CONSTRUCTION** of this screen is of the most durable quality. The inner perforated cylinder passes through cast iron heads at each end of screen. The heads are fitted with removable steel tires which can be replaced after several years' wear at small cost. The two heads revolve on four special steel faced trunnions of carwheel specification which last many years.

THE WELL KNOWN QUALITY OF SCREEN MATERIAL furnished by Johnston & Chapman Co. to users of all makes of screens from coast to coast is sufficient recommendation of the quality of the perforated cylinders and jackets used in the manufacture of the O'Laughlin Screen.

**WRITE FOR PARTICULARS**

## Another O'Laughlin Screen Testimonial

Johnston & Chapman Co.,  
2921 Carroll Ave.,  
Chicago, Illinois.

Gentlemen:

We have three O'Laughlin Screens in operation here.

We have been using them for the past five years and must say that they are very economical in regard to repairs and power consumption. We have had experience with nearly all the other types of screens on the market, and it is our candid opinion that your screen far surpasses any similar equipment that has yet been devised.

It is a pleasure for us to extend this commendation and we would be pleased to show any interested parties these machines in operation.

WAUKESHA LIME & STONE CO.  
Waukesha, Wisconsin.

# JOHNSTON & CHAPMAN CO.

2921 Carroll Avenue  
CHICAGO, ILLINOIS

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## Agricultural Limestone Producers

Must employ a Pulverizer that will produce a finely ground and uniform product at a very small expense.

## The Bradley Three Roll Mill

Does all this and more. It takes material  $\frac{3}{4}$ -inch and under and produces a very finely ground material in a single operation at a lower production cost per ton than many other mills which produce a coarser material. It is simply constructed, easily and economically operated.

Many of the most successful Lime Companies now employ this mill exclusively. It successfully pulverizes any Dry Refractory Material at a surprisingly low cost.

Why Not Send for Catalog and Full Data. Our Engineers Can Solve Your Grinding Problem

# BRADLEY PULVERIZER CO.

BOSTON

London, England

Works: Allentown, Pa.



## The Guarantee of Results

MADE BY THE

## RAYMOND PULVERIZING AIR-SEPARATING SYSTEM

### IS AS GOOD AS A GOVERNMENT BOND

Our long experience in grinding operations, extending over forty years, enables us to inspect a small sample of the material you wish to reduce to a powder and tell you definitely what type of mill is the best for the purpose.

If one of our mills will handle your material and give you the results you require we will give you an absolute guarantee of capacity and fineness to protect you against any possible failure on our part.

Or should you wish it, we will gladly pulverize a 100 lb. sample in our testing mill and submit the result to you.

We know your grinding or pulverizing requirements can be handled most efficiently and economically on one of our Roller Mills or Automatic Pulverizers and we give you an absolute guarantee of performance merely as proof that our Mill will do as we say.

What more proof, other than our guarantee, is necessary to convince you that we can handle your pulverizing problem satisfactorily?

Write us today.

The coupon  
will bring  
you our  
catalog

**RAYMOND BROS. IMPACT PULVERIZER COMPANY**

1301 North Branch Street, CHICAGO, ILL.

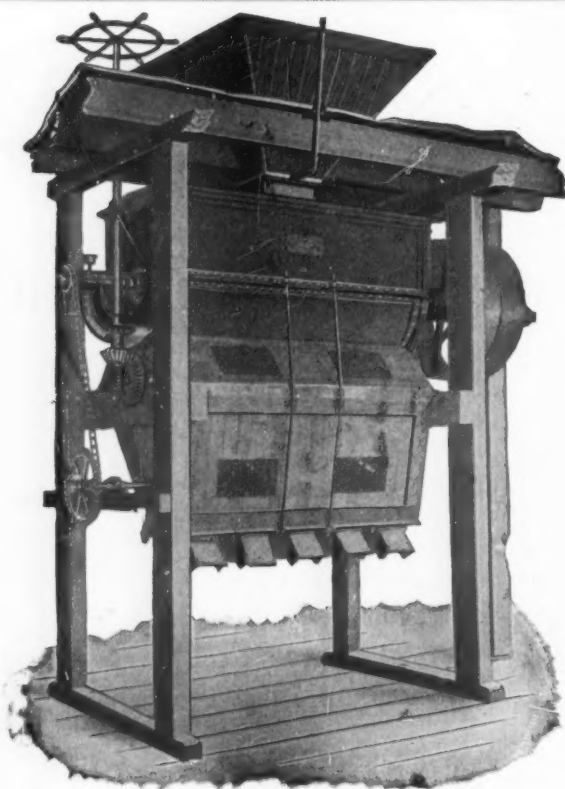
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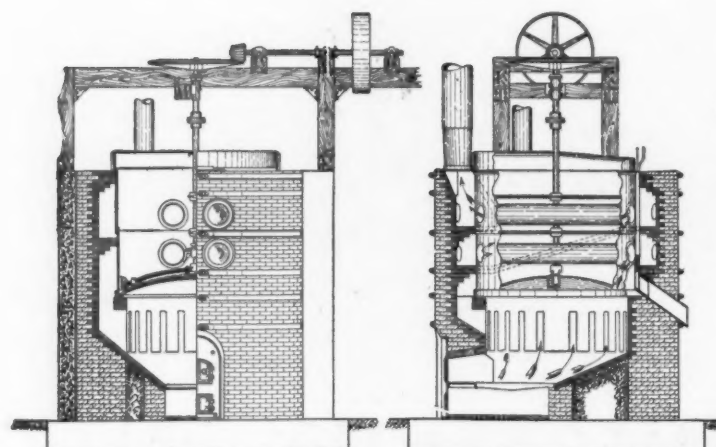
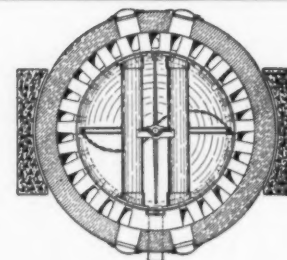
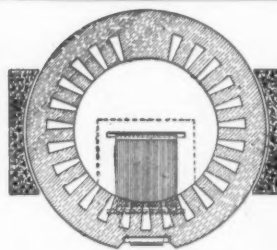
STREET .....

CITY..... STATE.....

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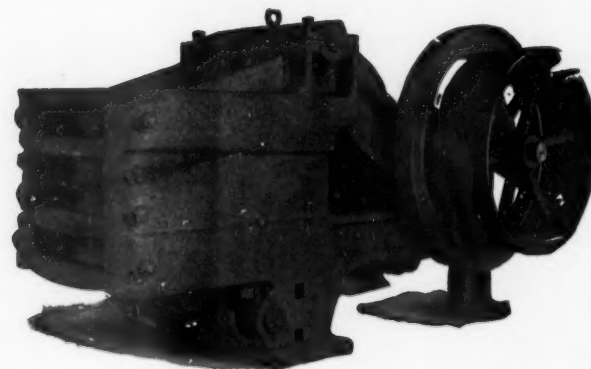
Enterprise Noiseless Mixer



Ehrsam Calcining Kettles—Built in 5 sizes—6-8-10-12-14 feet in diameter, having capacity of from 3 tons to 20 tons to the charge



Horizontal and Vertical Heavy Duty Grinding Mills



Jaw Crushers Built in all sizes up to 24" x 34" jaw opening. Rotary Fine Crushers in sizes up to 42" inside diameter.

**The J. B. Ehrsam & Sons Mfg. Co., ENTERPRISE, KANSAS**

Manufacturers of Plaster Mill Machinery, Conveying Elevating and Power Transmission Appliances

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS



# "GATES" GYRATORY BREAKERS

## OVER 7,000 IN ACTUAL OPERATION

View Showing Partial Stock of Gyratory Crusher Parts.

To  
Facilitate  
Complete  
Shipment of  
Machines



For  
Convenience  
Of Those  
Operating the  
"Gates"

## ALLIS-CHALMERS MANUFACTURING CO.

MILWAUKEE

OFFICES IN ALL PRINCIPAL CITIES

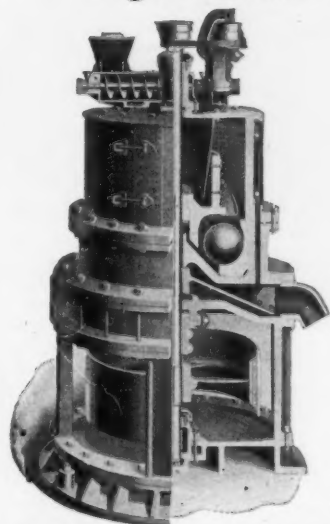
WISCONSIN

For All Canadian Business Refer to Canadian Allis-Chalmers, Ltd., Toronto, Ont.  
FOREIGN REPRESENTATIVES—Chile and Bolivia: Mark R. Lamb, Huerfano 1157, Casilla 2653, Santiago, Chile. Europe, East Indies, etc.: H. I. Keen, 732 Salisbury House, London Wall, London, England. South Africa: Herbert Almsworth, P. O. Box 6659, Johannesburg, South Africa. Australia: Frank R. Perrot, 888 Hay St., Perth, W. A., and 204 Clarence St., Sydney, N. S. W. South America, China, Philippine Islands, Japan: American Trading Co.

## The Fuller-Lehigh Pulverizer Mill

A Complete Self-Contained Unit

The most economical mill for producing  
Agricultural Limestone



Reduces lump rock to  
20, 40, 60, 80, 100,  
or 200 mesh.  
Requires no outside ac-  
cessory equipment.  
Requires no overhead  
shafts, drives or  
screens.  
All material discharged  
from mill is finished  
product.  
No inside journals or  
bearings.  
No inside lubrication.  
Uniform feeding sys-  
tem.  
Constant and free dis-  
charge.  
Low installation cost.  
Low operating cost.  
Low lubricating cost.  
Dustless operation.

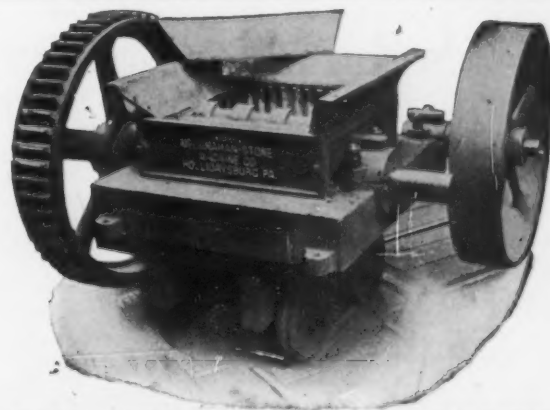
Built in sizes to meet the requirements of your trade. Grinds rock to meet the specifications of all Agricultural Experiment Stations.

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### Lehigh Car, Wheel & Axle Works

Main Office and Works: Catasauqua, Penna.

BRANCHES:  
New York City: 50 Church St. Pittsburgh: Farmers Bk. Bldg.  
Chicago: McCormick Bldg.



### OUR SINGLE ROLL CRUSHER IS AS SIMPLE AS CAN BE

Is easily fed, makes less fines than either a Gyratory or Jaw. Capacity 5 to 500 tons per hour. For crushing Limestone, Dolomite, Hard Rock, Phosphate, Cinders, Etc. Screens of all descriptions. Washers for dirty stone.

Ask for Information

McLANAHAN-STONE MACHINE CO., Hollidaysburg, Pa.

BACON & FARREL  
ORE & ROCK  
CRUSHING & WORLD KNOWN  
**ROLLS-CRUSHERS**

EARLE C. BACON, ENGINEER  
HAYMEYER BUILDING, NEW YORK

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## Crushing and Grinding Equipment



Strongest and simplest crusher in the world, therefore cheapest to operate

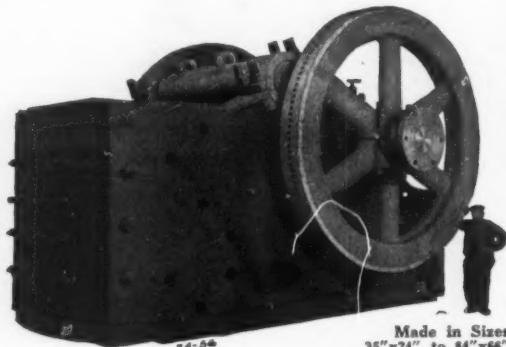
### McCULLY Gyratory Crusher

In every detail of construction, high-class design, best selected materials, and skilled workmanship have been combined to produce the most durable, the **highest quality crusher**. All bearings are provided with efficient and simple lubricating devices, not likely to get out of order and requiring but little attention.

The main shaft is suspended from the point of no gyration, reducing the wear of the parts and the power required to operate the machine.

The crusher is provided with exceptionally large bearing surfaces and the steel gears which minimize shut downs and expensive repairs.

Our Catalog PM 4-16 fully explains and illustrates the superior features and construction of the McCully Gyratory Crushers. Write for it.



Made in Sizes  
36"x24" to 84"x66"  
Receiving Openings



Built  
in the Size  
to Meet Your  
Requirement

### SUPERIOR Jaw Crushers

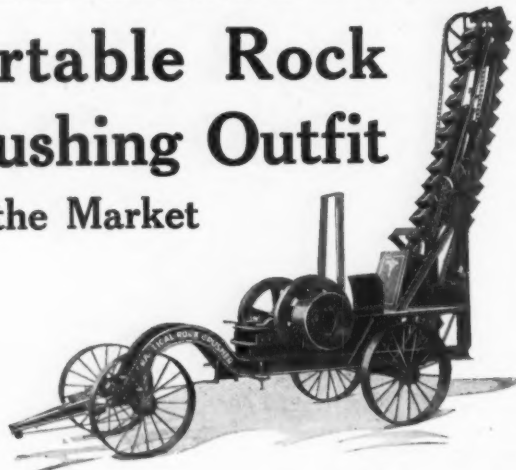
have an enviable record during five years' operation on trap rock. A dozen machines of this type are giving eminent satisfaction. Cast-steel construction throughout, spring supported pitman, adjustment for changing product. Manganese steel wearing parts; engine type flywheels; automatic lubrication; water cooled main bearings.

## WORTHINGTON PUMP AND MACHINERY CORPORATION

115 Broadway, New York. Power & Mining Machinery Works: Cudahy, (Suburb of Milwaukee) Wisconsin  
Branch offices in all principal cities

M420-4

### This Is the Most Efficient Portable Rock Crushing Outfit On the Market



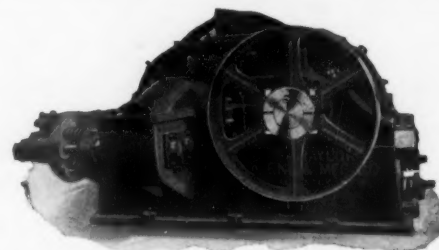
The old troublesome joints of the folding type have been eliminated, and the elevator is all in one section, always ready for use.

**CONSTRUCTION**—Made entirely of open hearth steel (except fly wheels and pulley). No wood construction. Crusher equipped with jaw plates and liners made of our well-known Hard Iron. Elevator is light but rigid, being constructed of structural iron shapes.

Write for further interesting facts on this outfit

Webb City & Carterville Foundry & Machine Works  
Main Office, Webb City, Mo.

### TRAYLOR CRUSHING ROLLS THE "IDEAL" CRUSHER FOR MAKING 3/4-IN. AND FINER STONE FOR CONCRETE



FURNISHED WITH EITHER PLAIN OR CORRUGATED SHELLS AND IN ALL STANDARD SIZES

### ASSURES MAXIMUM CAPACITIES AND MINIMUM HORSEPOWER, UPKEEP AND ATTENTION

All corrugations and flanging of the Roll Shells eliminated by the Automatic Shifting Device which shifts the Fixed Roll in a lateral direction twice each hour. It is always on the job, never lies down or stops at any one place long enough to let corrugations get a start.

And It's the Simplest Thing You Ever Saw  
6 Parts That Run in Oil—That's All

TRAYLOR ENGINEERING & MANUFACTURING CO.  
New York Office: 24 CHURCH ST. Main Office and Works: ALLENTOWN, PA., U.S.A. Western Office: SALT LAKE CITY, UTAH  
CHICAGO OFFICE: 1414 Fisher Bldg.

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## AUSTIN GYRATORY CRUSHERS

Made in Eight Sizes

50 to 5000 Tons Per Day

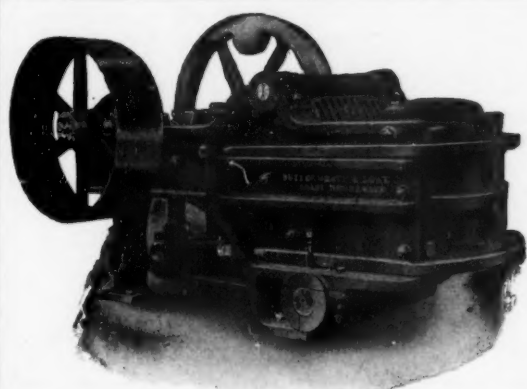
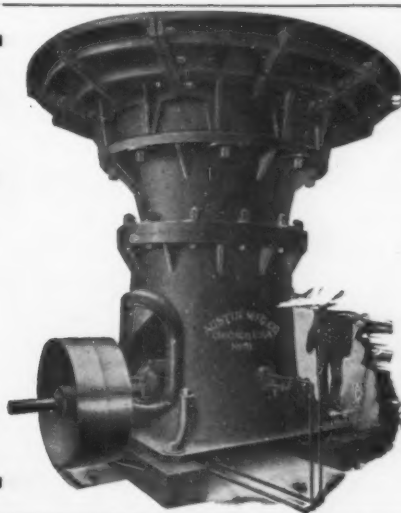
Plans and Specifications submitted and expert advice free on any problems involving rock-crushing or earth-handling.

**AUSTIN MANUFACTURING CO.**

New York Office: 50 CHURCH STREET

CHICAGO

We manufacture:—Road and Elevating Graders, Scarifiers, Road Rollers, Quarry Cars, Dump Wagons, Stone Spreaders, Street Cleaning Machinery.



Nippers—17 x 19", 18 x 26", 20 x 30", 24 x 36" and 26 x 42"

## JAW AND ROTARY CRUSHERS

For all Rocks and Ores Softer than Granite

GYPSUM MACHINERY—We design modern Plaster Mills and make all necessary Machinery, including Kettles, Nippers, Crackers, Buhrs, Screens, Elevators, Shafting, etc.

SPECIAL CRUSHER-GRINDERS FOR LIME.

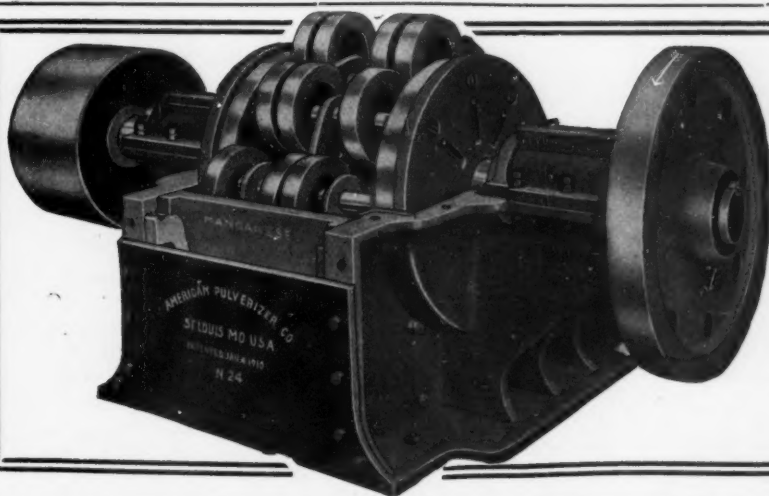
**Butterworth & Lowe**

17 Huron Street,

Grand Rapids, Mich.



Crackers—6 sizes—many variations.



Pulverizing Satisfaction Is Based on Service

—THE—

## American Ring Pulverizer

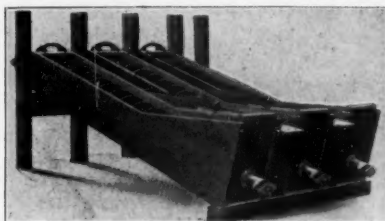
Affords the utmost in value and is the foremost in Pulverizer Construction and Efficiency

Buy One Try It Pay Afterwards

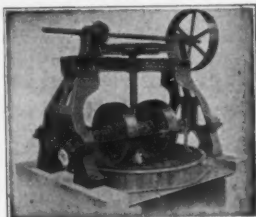
WRITE US YOUR NEEDS—  
WE WILL SEND PARTICULARS

**AMERICAN PULVERIZER CO., East St. Louis, Ill.**

Eastern Sales Office, 207 Fulton Bldg., Pittsburg, Pa.



Sand Washers

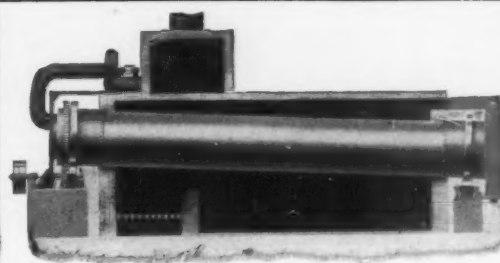


9-Foot Dry Pan

**LEWISTOWN FOUNDRY & MACHINE CO.**  
LEWISTOWN, PA.

Builders of heavy duty crushers and glass sand machinery  
Glass sand plants equipped complete

WRITE FOR PRICES AND CATALOG



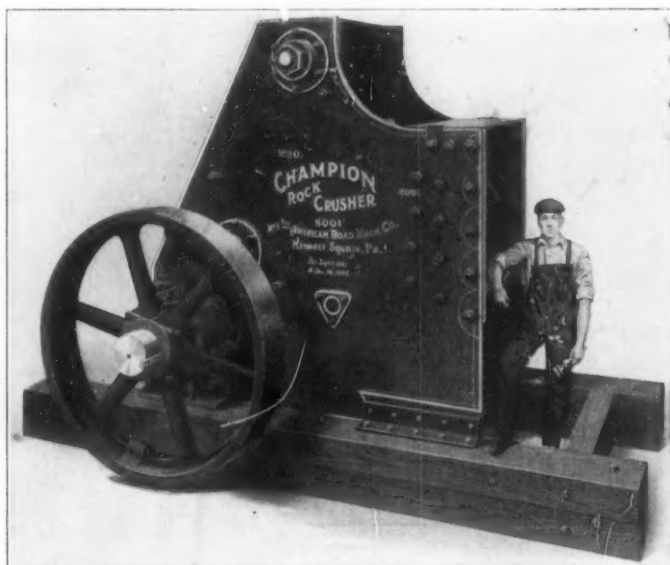
We make the  
largest variety  
of  
**Mechanical  
Dryers**

Write for  
Catalog  
No. 16

We are also Engineers and Manufacturers of  
Car Hauls Feeders  
Crushers and Pulverisers Mining Machinery  
Drop Forged Chain Mixing Machinery  
Elevators and Conveyors Sand Plants  
Soft Mud Brick Machinery Screens

**THE C. O. BARTLETT & SNOW CO., Cleveland, Ohio**

## (5) Reasons Why You Need the Champion Rock Crusher



The No. 29 (22 by 50) Champion Steel Rock Crusher. The Ton-a-Minute Machine.  
**Built Like a Battleship.**

### Here Are the Reasons:

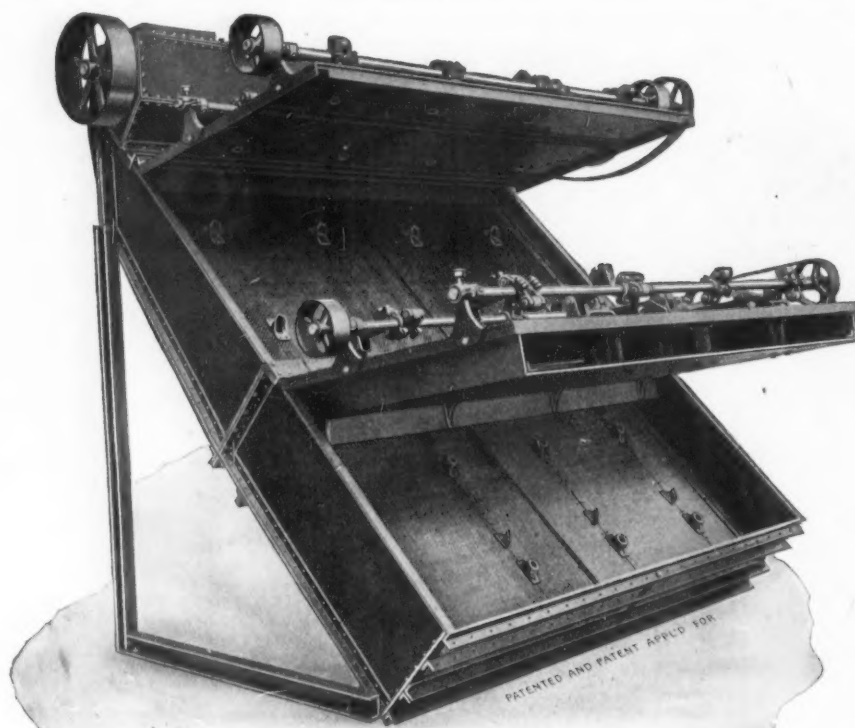
- (1.) It is of larger capacity than any other Rock Crusher of the same receiving opening.
- (2.) It costs less to maintain than any other crusher. Practically all parts subject to strain are of steel. The bearings all run in replaceable bushings.
- (3.) It can be operated more economically than any other crusher. The feeding mouth is low, and is not obstructed by spiders or any other arrangement. The machine takes a stone the full dimensions of the opening.
- (4.) It is more easily adjusted than any other crusher. A very few minutes enables changing the machine to crush from one size product to another.
- (5.) We can prove every claim that we make for this machine. Will you give us the opportunity?

Write to-day for informing catalog of Crushing and Quarrying Machinery. It will pay you.

*Sand and Gravel Washing Plants are our Specialty. Are you interested?*

**THE GOOD ROADS MACHINERY CO., Inc.**

**Fort Wayne, Indiana**



## STURTEVANT

### NEWAYGO GIANT SCREEN

144 SQ. FT. OF SCREEN AREA  
LARGEST INCLINED VIBRATING  
SCREEN, FOR BIG SCREENING UNITS

Screens Everything Screenable  
FROM 1/4 INCH TO 180 MESH

Newaygo Screens are built in many styles and sizes to fit nearly all kinds of materials, conditions and capacities. There are thousands in use.

### Newaygo Principle:—

Inclined screen surface—so that coarse mesh produces fine product—large openings do not clog—coarse wire is durable. Wire cloth stretched tight and held taut tapped by hundreds of little hammer blows upon its reinforced surface gives an unequalled vibration without destructive shocks. No eccentrics, no bumping mechanism. Less than 1 H. P. operates the largest. Large capacity; accurate output.

**SEND FOR NEW CATALOGUE**

*More in Use Than All Others Combined*

**STURTEVANT MILL CO., HARRISON SQUARE, BOSTON, MASS.**

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS





FIFTY-FOUR HOLES. AVERAGE DEPTH NINETY-TWO FEET.  
FIRED BY MEANS OF CORDEAU-BICKFORD DETONATING FUSE

## CORDEAU-BICKFORD

An Instantaneous Detonating Fuse  
for SAFETY and EFFICIENCY

Particularly adapted to well drill shooting where large columns of explosives are fired, where it is desirable to break the charge in the drill hole, or where a great many holes are to be fired at one time.

Cordeau is run from the top to the bottom of the drill hole in contact with the explosive charge,—one continuous detonator.

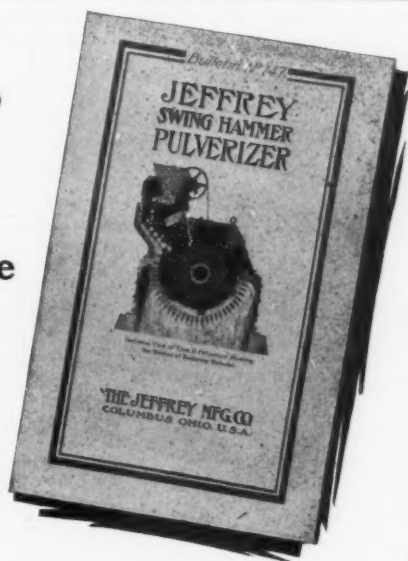
RESULTS: Complete detonation, quicker detonation, greater shattering effect, lower secondary costs, substitutes a detonator which is insensitive to shock and friction in place of the electric caps.

Write for Cordeau booklet and Deep Well Blasting

**The ENSIGN-BICKFORD COMPANY**  
SIMSBURY, CONNECTICUT

ORIGINAL MANUFACTURERS OF SAFETY FUSE. ESTABLISHED 1836

Every Man  
Who Has to  
Crush  
Material  
Should Have  
This Book  
Handy



48 pages of valuable Data, Illustrations and Descriptions of  
**Jeffrey Swing Hammer Pulverizers**

for reducing Limestone, Shale, Marl,  
Gypsum, Slate, Clay and other materials.

**Mail the coupon  
for your copy**

Send us your samples for test, and we will gladly recommend the right machine for your requirements.

Jeffrey Manufacturing Company  
935 North Fourth Street, COLUMBUS, O.  
Please send copy of Bulletin No. 147.

Name .....

Address .....



## WILLIAMS FINE GRINDERS

### ADAPTABILITY—

The Williams Universal Fine grinder illustrated above can be used wherever raw material, such as limestone, gypsum, clay, coal or shale, is ground to a fine product. These machines will take these materials in cubes 2" and under and reduce the same in one operation to a fineness of 95% passing through 20 or 30 mesh sieve, *without the assistance of outside screens or separators*. Therefore, the Cement maker, the Gypsum grinder, the Quarry operator desiring to make Agricultural limestone, can all use these machines to advantage.

### ADJUSTABILITY—

The Williams Universal Fine grinder is adjustable in more ways than one. Adjustments to the wearing parts are of vital importance to a grinding mill, the Williams mill contains more adjustable features than any other similar mill. In addition to the hand wheel adjustment of the grinding plate which allows the operator to control the fineness of his finished product at all times, and *while the mill is in operation*, this mill is also provided with adjustable discs and hammers, insuring long life to these parts, and an absolutely uniform product at all times.

### ACCESSIBILITY—

This is the third important point in favor of the Williams Universal Fine grinder. Look at the illustration above, note how the throwing back of the cover exposes the entire inside of the machine, four bolts only need to be removed and the operator is ready to proceed with the renewals of parts, inspection of mill, etc. Cage, Hammers, Discs, in fact the entire inside of the machine is quickly accessible, which, as every operator of grinding machinery knows, is an all important point, especially when repairs have to be made quickly.

Further details regarding these mills will be found in catalog No. 4.

**The Williams Patent Crusher & Pulverizer Company**  
General Sales Dept., Old Colony Bldg.  
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67 Second St.,  
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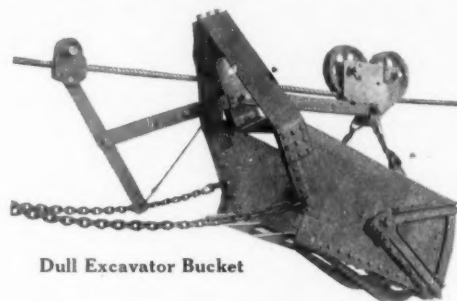
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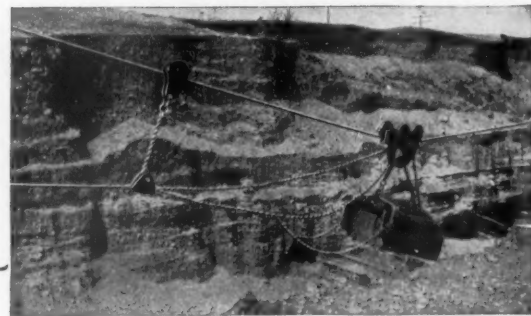
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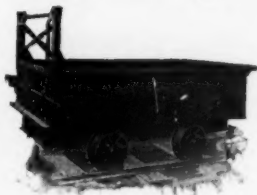
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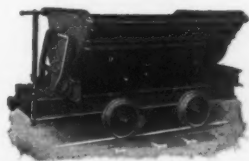
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Also made in end dump. Above  
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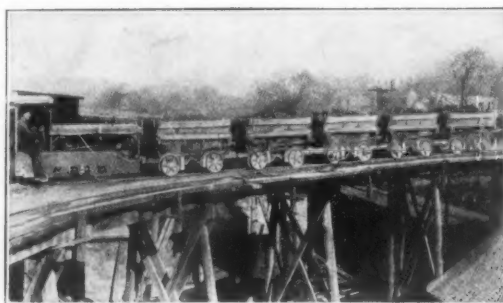
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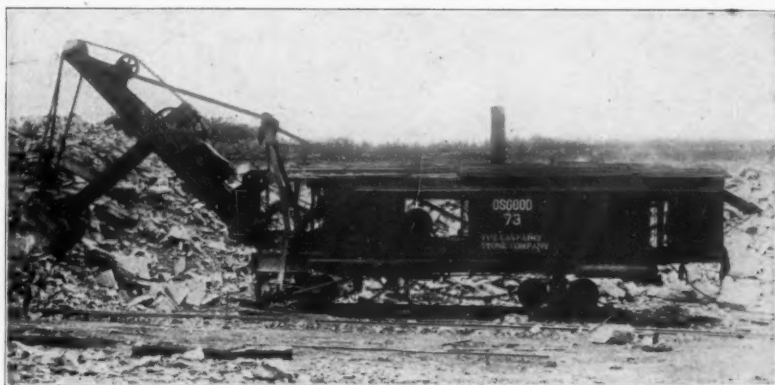
“During three average months our Plymouth handled 29,521 tons of material at a cost of two and nine-tenths cents per ton,” says Thos. D. Brown, the general manager. “It consumed five gallons of gasoline daily, and half a gallon of lubricants. During this period The Plymouth, operating on a trestle, traveled 1,476 trips, 250 yards to a trip, or 210 miles. These figures are based on twenty tons to a trip, but at times double that amount is hauled.”

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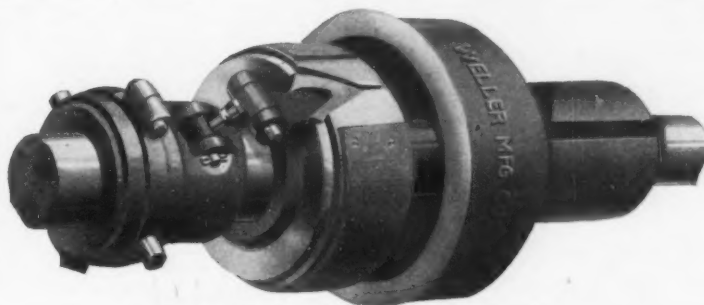
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You may have the latest type of Crushers, Auto Trucks, etc., but if your equipment does not include a



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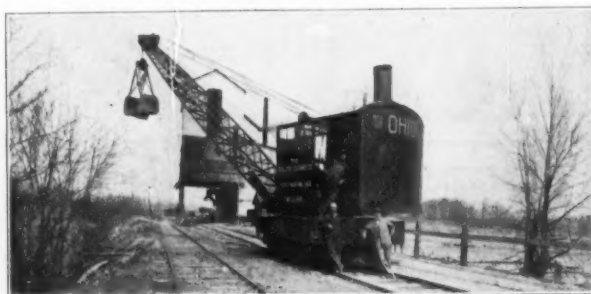
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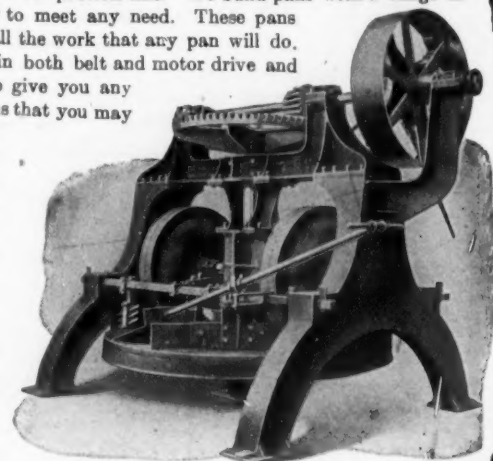
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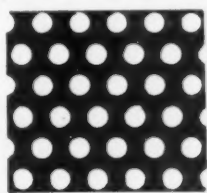
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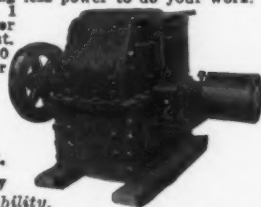
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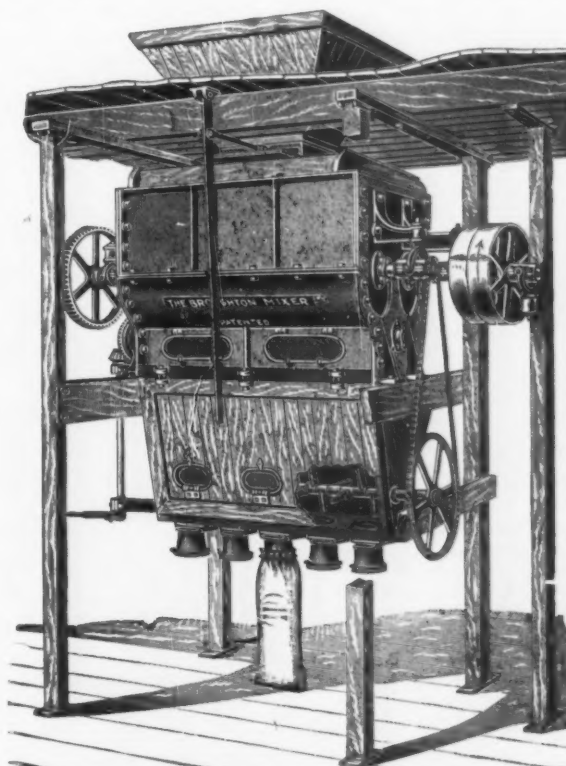
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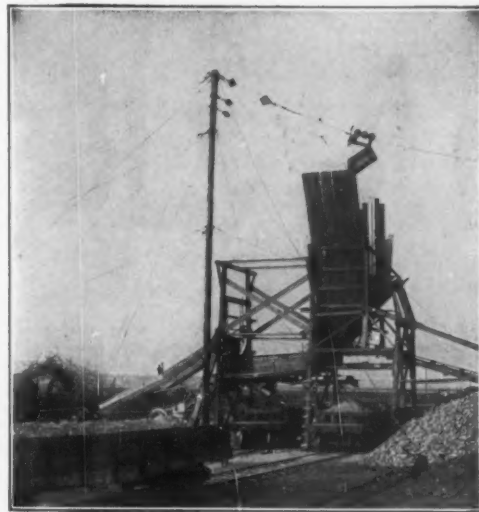
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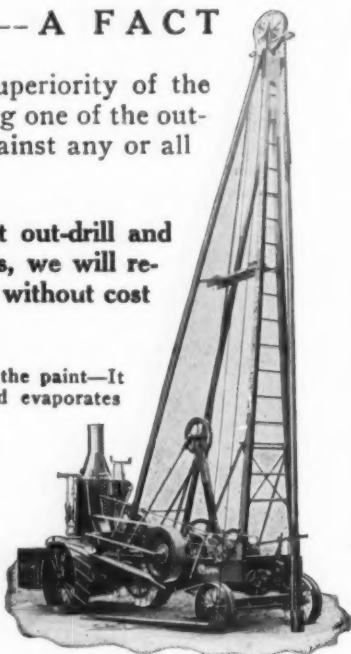
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INCORPORATING DEALERS BUILDING MATERIAL RECORD

Volume XIX

CHICAGO, MARCH 22, 1917

Number 10

PUBLISHED SEMI-MONTHLY.

DEVOTED TO

Quarry Products, Cement, Lime, Plaster, Sand and Gravel, Clay Products and Building Specialties—Fireproof Building and Road Construction.

THE FRANCIS PUBLISHING COMPANY.

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Entered as second-class matter July 2nd, 1907, at the Postoffice at Chicago, Illinois, under act of March 3rd, 1879.  
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## The Plain Truth Wanted.

The Supreme Court, having passed favorably upon the validity of the Adamson law, settles the contention of the Railroad Brotherhoods that they are entitled to an eight-hour law. This permanently disposes of the threatened strike, and the management of the railroads announce that the decision will mean an additional labor expenditure upon the common carriers of not less than \$50,000,000 per annum, which, being interpreted, is evidently intended to convey to the shipping public that there must be a concession on the part of the shippers to allow such an additional sum to be collected out of the freight tariffs. It appears that none of the railroads have provided for such a labor expenditure or have available funds from any other source with which to meet this new localized exaction.

The state of the shipper's mind is that of a huge question mark. The shippers want to know what this new settlement with the labor Brotherhoods is going to cost them. They also want to know how soon traffic conditions can be improved and if the railroads, even with the additional concessions, will be able to serve the public adequately.

The railroads will not be in position to improve the traffic conditions to any noticeable degree. There never was such a spectacle of dismal incompetency as that of the American railroad transportation monopoly. For many years it has been the habit and custom for every railroad to overrate its power from 10 to 40 per cent. Such studies in efficiency that the railroads have made have been misdirected; one and all, they have steadily increased the maximum rate of the car unit from twenty-five to fifty tons and their policy has always been to insist upon maximum loads. A locomotive that is rated at 3,000 tons is given a load up to its capacity of 3,000 tons; that locomotive could take a 2,500-ton load over its division in six and a half to seven hours. It could do it in eight hours in the worst kind

of weather, but when it comes to pulling 3,000 tons it can just about snort its way out of the yard, get out on to the main line to the first little grade and there she stalls and the train has to be cut and pulled over the grade in two sections; coupled up again and proceed to the next grade where the operation is repeated, and it is finally pulled into the end of the division in fourteen to seventeen hours, simply because the efficiency accountants of the railroad do not know enough about their equipment to realize the practical things that confront them every day. The probability is that the eight-hour law will mean that the units of motive power will very soon be detailed upon loads that they can actually draw with ease over the particular division in which they are operating. This will cut out the overtime entirely and the railroads will not be taking such efficiency as they have had in the past out of the hides of the freight crews, and they will not have to pay the men any more money because the overtime will be cut out.

Capitulation has shown that the average movement of a car loaded with coal is just five miles per day of twenty-four hours and the same ratio prevails with regard to many other raw material commodities. Such is not the case with perishable and refrigerator trains, loaded with meat, fruit and the like, where the division is covered with almost the speed of the passenger train. The great cost of the railroads has always been rolled up by the losses on those raw material commodities which it is not the legitimate office of the railroad to carry for any great distance at all. The great tonnage of raw material should be hauled from its point of origin by the shortest route to water and there transferred to water transportation for the long and costly haul to the nearest point of final delivery where the railroad takes it again as a local shipment from the water route to its destination. In this way, millions of ton miles of traffic could be disposed of by the railroads with one sweeping haul, but the railroads of this country have always insisted upon considering themselves the national monopoly of transportation and charge up the huge losses of their mismanagement to the people who either do not know any better or are too busy with other things which they consider to be more important to them personally.

The American public, as well as the American shippers, have long acquired the habit of considering the decision of transportation matters a big problem for which the railroads are not responsible and, consequently, every request and every demand that the railroads have made has been admittedly acquiesced in and supported. The statements and utterances of railroad magnates are never questioned until a bubble bursts somewhere and then an investigation has developed such a mess as to show incompetency, disinterest, crookedness, carelessness and every other disgraceful procedure that a big business could be made a party of.

It is only when a big showdown like the recent New Haven scandal comes along that the public gets a view of the real inside of railroad management and an inkling of where the money really goes. We have been systematically taught to believe and it is the broadcast opinion of the land that the railroads are conducted upon very nearly a cost basis, at least that is what the management of the roads would give us to understand. They are always broke, always in the money market for big loans, can never make the slightest improvements without borrowing the money, scream for help like a sick girl

at every trivial ripple of commercial or industrial activity which calls upon them for the slightest assistance.

Every shipper in this country needs the railroads and wants them to prosper, because it is recognized that it is only a prosperous concern that can give adequate accommodation and efficient service. But the shippers and the public are no longer prepared to take the juggled and untruthful statements of the managements of various railroads and be contented with the tariffs that are built upon such cost claims as they make. The shippers and the public are entitled to the truth about the railroad situation; they will not be contented with anything less than a reasonable explanation of the whole transportation matter. It will be a pretty hard thing for the president of any railroad to explain to any business man who is capable of running a peanut stand why a carload of coal moves no more than five miles per day. Nobody will be particularly interested in the details of the efficiency report that begins in the middle of the transportation operation in the Department of Commerce and Labor, nor will they believe it is good for anything. The department should be able to work out the details, the fundamental and basic principles of the great transportation problem that confronts the industrial and commercial interests of the United States. If there are too many passenger trains, if idiotic competition is wasting a great deal of money, let it be known and apply the remedy as soon as it is known.

One of the first fundamentals of the transportation problem, insofar as freight traffic is concerned, is that of getting the traffic over each division each day in the shortest possible time, which means the least possible expense. There are divisions right now incapable of passing three freight trains per day in both directions, which, if the simple matter of attending to the sensible loading of the motive power units was corrected, could pass twelve to fourteen trains per day in both directions. Every farmer who hauls oats or potatoes to market and a load of coal back home, when he has unloaded his produce knows how to measure the load against the team that is to pull that load, with reference to the road over which the load is to be hauled.

The man who figures the railroad only has a factor of grades to deal with; the farmer has grades, soft spots, muddy swollen streams and a half dozen more local conditions to take into consideration. The railroad man simply has to give his engine a load that it can haul over a road to get the service done in the shortest possible time, the speeding up process is such a simple matter as to really only require a teaspoonful of brains and yet it would multiply the availability of rolling stock five or six times over that of its present efficiency.

The purpose of this article is not to appear to criticize the palpable incompetency of railroad management in this country so much as it is to call the attention of shippers and the public to the fact that they are entitled to the truth with regard to transportation prob-

lems and there does not seem to be any other way to get at the truth than to have the Department of Commerce and Labor work out the fundamentals of transportation and give the people the full facts.

Nearly everybody is familiar with the fact that the United States Government exercises the domain over the water routes of this country which are capable of carrying more than 1,000 times the amount of traffic that the railroads have ever carried and at a cost which is so insignificant by comparison that the figures really cease to be impressive. It is because the Government exercises the right in the domain over the free water routes of this country that the railroads have systematically ravished all of the traffic from them and taken it to their own privately owned thoroughfares. Now that the railroad labor Brotherhoods have gained their point, we will be given an example of speeding up on the part of the railroads such as has never been known before. It may be that a carload of coal will be moved as much as ten miles a day, which will be a great improvement—just 100 per cent—over that of past experience. It would be possible to move that typical carload of coal the whole length of the division in seven or eight hours. Then there would be a mighty change which would result in the accommodation of cars and everything else pertaining to the service of the railroads.

We are not interested in the bookkeeping details nor the cunningly figured out statements and exhibits of the railroad accountants; but the public and the shippers ought to have the plain old ordinary truth, such as Grandma used to tell, about the basic things concerning transportation.

Transportation has come to be, in recent years, the one vital and important, as well as the determining, factor in the industrial and commercial world. It is important to every citizen as well as to every shipper, because, in the long run, it is the consumer who pays the freight.

Unless the dealers in the country towns are wise enough to handle aggregate materials for the making of concrete there is never going to be a great deal of progress developed by the farmer customer. It is all a mistaken idea to suppose that nearly every farm includes a gravel pit. If it does, it is not apt to be a good farm. Usually the material that comes from a sand pit that is only worked intermittently is not to be recommended for concrete work. It is always better to recommend to the farmer customer that he obtain his aggregate material from a source of supply that can be depended upon for quality. Especially clean material.

Fire losses, damages, wastes are not cured or recovered by insurance, but are only distributed thereby to a very large number of losers. The figures are too big for ordinary comprehension, and every bit of it is net waste. Concrete construction from foundation to roof is the only remedy yet offered by science. It is effective.

#### IN THE SMOKING CAR.

"Well, stranger, we're getting close to your getting off place. This has been a mighty interesting ride for me. I've been 'hogging the act' with my conversation—but that is partly your fault, because you've been so all-fired patient you've just encouraged me to go ahead.

"Before we part I want to leave with you a few brief observations I haven't covered. I'll shoot them off quick—and you can take 'em or leave 'em—as you like.

"I've probably given you the idea that selling goods is mighty hard work. So it is. But that isn't all. You've got to mix head work with your hard work—perspiration with your inspiration—to put it over in any kind of form at all.

"A fellow sitting behind a twenty-five-cent near Havana back at the polished roll tops in the home office has plenty of time to size up each situation. He goes at it coolly and deliberately, but out here on the road we're up against a different sort of proposition. We've got to think quick and think straight. The situation must be met as it arises.

"A fellow has to take care of himself to get away with it. Good health is working capital. The fellow who spends his night aviating through Bohemia on a green bottle followed by his enthusiastic army of corks, loses his cutting edge before morning.

"The footlights have their place—so do the ball games—the pasteboard proclivities—but their place isn't on the expense account of the house. Every

time a fellow digs into the high life stuff he runs a knife through his character. He is weakening himself. A man cannot burn his candle at both ends and make it last very long.

"Give me the fellow who swings from under the sheets in the morning with clear eye—a ruddy skin—a sprightly step—a 'Gee-it's-a-peach-of-a-day' look in his eye. Give me that fellow who hits the hay at a decent hour after a good day's work—who is out on the job while the other chap is still debating his chances of getting business on a rainy day.

"Give me the fellow who can smile without an effort—who can look you square in the eye and talk without spilling a lot of bum jokes and personal experiences. Give me a clean-cut fellow—who is all for the house—who pays for his laundry out of his personal account and who thinks sweet thoughts.

"The cigarette artist—the booze critic and the flossy chaser—and the professional 'do it tomorrow' boob—soon eliminate themselves. They never have to be fired. The very nature of salesmanship—the very bigness of a man's territory—the unlimited possibilities—the speed of time—the pressure of competition—all combine to weed out the strong man from the weak.

"There is a strain. Of course, I don't mean the fellow who is merely covering the territory—I mean the big, broad-gauged fellow who realizes the task he has on his hands—and goes at it on a solid business basis.

"A fellow has to have respect for the house and for himself. There is no room for the knocker—

the yellow pup who barks at the company at its own expense. There are enough little undercurrents to seep under the business structure without a fellow hastening them by nursing vile thoughts in his bosom.

"Let him learn to speak of his house with pride—with the very joy of being a part of it—to tell his story with the wonder of it in his face—in his eyes—in his voice.

"Let him handle his samples with pride—as though they were precious things—wonderful things.

"I haven't told you half, stranger, but I'll warrant you will feel better toward the boys on the road—once you know what is expected of them. The demands are great—but the rewards are worth the battle.

"Let a man take care of himself—think straight—keep at it and the results will come. Fate is good. The good fellow always rises to his proper level. Things may look dark and unpromising but ability will shine out a thousand miles away, and someone—someday—will be startled by its light and seek out the orb from which it radiates.

"There is always room for the able man. The world needs him, if he'll only hold his head above the crowd for a moment—the buyers or brains will find him.

"Goodbye, stranger. Good luck to you. This is my last trip on the road. I've been made sales manager. Come in and see me some time—and I'll show you how Mac will train the fellow who gets his place when Mac steps on and out—Goodbye."



# WITH YOU and ME

The Hixon Lumber Co., Atchison, Kan., has installed new Republic one-ton truck.

H. S. Fuller, manager Oxford Lumber Co., Oxford, Neb., is spending a few weeks at Lodi, Cal.

W. P. Seawell Lumber Co. has put in a new yard at Eldorado, Okla., with G. H. Babbitt as manager.

Bone-McLucas Lumber Co., Fairbury, Neb., has purchased the yard of Van Orsdol & Crane at Steele City, Neb.

Sheets Lumber Co. has sold its yard at Orleans, Neb., to George Austin. Tom Rowe of Hastings will be manager.

J. S. Gibbs has been permanently appointed manager of W. R. Pickering Lumber Co.'s new yard at Winfield, Kan.

Cherney & Watson Lumber Co., of North Bend, Neb., has purchased the yard of the Geo. A. Hoagland Co. at Rogers, Neb.

C. R. Judkins has bought the R. S. Proudft Lumber Co. yard at Upland, Neb., and will operate as C. R. Judkins Lumber Co.

C. O. Blunk has been appointed manager of the Houston Lumber Co.'s yard at Eureka, Kan., succeeding W. S. Cooper, resigned.

The J. A. Gardner Lumber Co., of Orleans, Neb., has bought the J. A. Taylor yard at Atlanta, Neb. A. V. Brown will be manager.

Dascomb-Daniels Lumber Co. has bought the Eldorado Lumber Co.'s yard at Eldorado, Okla. Carl M. Bicken, Cameron, Tex., is manager.

George W. Graven has bought the yard of the Chicago Lumber Co. at Osceola, Neb., and will operate under name of Graven Lumber Co.

Mr. Vern A. McIntosh, formerly with Nye-Schneider-Fowler Co., at Fremont, is now with the Farmer's Union Co-operative Co., at North Bend, Neb.

Rud Allgyer has been transferred from the Antrim yard at Sumner to Corington as assistant manager and oil rig salesman for the Antrim Lumber Co.

W. L. Belt, president Canadian Trading Co., attended the automobile show in Kansas City. He has the Ford agency in his home town Eufaula, Okla.

J. W. Blakey has bought the yard of the Lyon Gray Lumber Co. at Kusa, Okla. Mr. Blakey resides at Dallas, Tex., and owns also the Ennis Lumber Co., at Ennis, Tex.

The Severance Lumber Co., of Hutchinson, Kan., has sold their stock of lumber and building material to the Houston Doughty Co. The former company will discontinue business.

Roy D. Finley, Wagner, Okla., succeeds Harry Osborne as manager of the Southwestern Lumber Co.'s yard at Grandfield. Mr. Osborne has joined the Dickason-Goodman forces at Tulsa.

E. Smith, formerly manager of the Houston yard at Orlando, Okla., has gone with the American Lumber Co. at Bartlesville. He is succeeded at Orlando by Ralf McCune, son of W. C. McCune of Perry.

J. W. Graber, formerly manager of the Western Hardware and Implement Co., at Pretty Prairie, Kan., has resigned to engage in the hardware business at Kingman, Kan. B. S. Wedel succeeds Mr. Graber.

ness at Kingman, Kan. B. S. Wedel succeeds Mr. Graber.

T. A. Courtenay, sales manager of the Louisville Cement Co., Louisville, Ky., is still ailing, having been confined to his home since the middle of January. He has been in bed practically half of that time.

J. T. Lemon, formerly with the Independent Lumber Co., Pratt, Kan., has been appointed manager of the Peoples Lumber Co.'s yard at Cullison, Kan.,



LEON GOODMAN, VICE-PRESIDENT AND GENERAL MANAGER, DES MOINES CLAY CO., DES MOINES, IOWA.

succeeding B. F. McDaniel who has accepted a position with the Midland Lumber Co. at Pratt, Kan.

John L. Pendergraft, Anthony, Kan., has succeeded M. B. Coombs as manager of the Long-Bell yard at Altus, Okla. Mr. Coombs goes to Jefferson, Okla., and C. O. Glasse, who has been in charge of the Jefferson yards for several years, takes the Long-Bell yard at Caldwell, Kan.

Haydon S. Gaines, assistant to the president of the Ohio Builders' Supply Association, addressed the Master Builders' Association at a dinner at Akron on Friday, March 9. One hundred and fifty men were present and listened to the talk which was on organization and the advisability of becoming better acquainted with the costs of doing business.

McCrady Brothers Co., with Braddock, Pa., as a center, are keeping a very close watch on all new operations and developments in the east boroughs of Pittsburgh. Their success is manifest in the hustling which their teams and trucks are doing all through that section.

Guy Morey has severed his connection with the Long-Bell Lumber Co., at Wichita, Kan., and will install a new yard with an initial outlay of about \$50,000.00. Plans are being prepared for buildings,

sheds, etc., though the exact location of the new yard is not yet decided.

W. J. Watkins, Louisville, Ky., who has been seriously ill of heart trouble for several weeks, is showing some improvement but it is doubtful whether he will re-enter the lists of the active building supply dealers. Mr. Watkins has been away from his office on Second street since February.

"Bill" Jones, representative of the Edison Portland Cement Co., was a recent visitor in Buffalo. He reports that eight signs 20x10', advertising this product, have been erected along the New York Central railroad, near Buffalo. Each sign reads:

"Insist Upon Edison Cement."

Leon Goodman, vice-president and general manager of the Des Moines Clay Co., Des Moines, Ia., is one of the active members of the American Face Brick Association. At the recent meeting held at French Lick he was elected a director. Mr. Goodman is a thorough believer in system and is also convinced that the details of a business should receive a just proportion of attention.

Heppenstall & Marquis, Pittsburgh, Pa., report that stocks in general are low on all lines. The stocks which they have ordered are mostly on the railroads which is the case with very many retailers in the city. Just now the call from building contractors for materials is not at all large. Prices on everything are very high and likely to go higher. The biggest advance which they note since Jan. 1 is on cement and lime.

The Noll-Welty Lumber Co. of Kansas City, Mo., which is the buying headquarters for a line of retail yards, has sold its yards at Hollenberg, Kan., and Westmoreland, Kan., both of which were operated under the name of the Central Lumber Co. The company has acquired yards at Abilene and Talmage, Kan., the former to be operated as the Central Lumber Co., and the latter as the Talmage Lumber & Hardware Co.

A new retail lumber yard has been established at North Century, Okla., Miami P. O., by the H. C. Miller Lumber Co. and will be operated under that name. A. T. King, formerly a stockholder in and manager of the King-Lawrence Lumber Co.'s business at Vinita, Okla., has sold his interest in that concern, and has become associated with H. C. Miller of Vinita in the new yard at North Century, and has taken the management of the yard at that point. H. C. Miller is very well known in lumber circles, having been in the business for a number of years, with yards at Vinita, Collinsville, Dewey, Owasso, and White Oak, Okla.

J. W. Windsor, secretary of the Houston Brothers Co., Pittsburgh, Pa., spent his winter vacation in February in Florida. He reports business all shot to pieces, meaning by that that the company has the biggest business ever on its books and that it cannot get anything moved. In fact, its sewer pipe plants in Ohio have accumulated so much stock that they have been forced to shut down because of a lack of cars to clean out their yards. The best call at present is for sewer pipe and building blocks. Prices are continually on the rise and new and higher quotations may be expected shortly, he says. This is a time when retailers as a general thing load up with stock for spring and summer needs. These they are unable to take now because of the car shortage and as a result contractors are likely to be badly handicapped in the spring by lack of material.

R. Maresch has purchased the lumber and hardware business of F. T. Kershner, Nekoma, Kan.

The Craig Lumber Co. succeeds the Meyer Lumber Co., at Liberal, Kan. John Craig is the owner and manager.

Over eighty new associate memberships were received by the National Fire Protection Association in February.

Gate Lumber Co. has bought Houston Doughty yard at Gate, Okla. E. H. Ankes, manager for Gate Lumber Co.

Howard Wilson, Hutchinson, Kan., has installed a fine lumber yard at Dighton, Kan. E. Lyle Tyner is the manager.

Chief Engineer Shirley, of the Maryland Road Commission, advises that he is planning 150 miles of new roads this year.

J. C. Burgess, of the J. C. Burgess Lumber Co., Carl Junction, Mo., is just recovering from a severe attack of pneumonia.

The Edison Portland Cement Co., New York City, have announced the removal of their general offices from 1133 Broadway to 8 West Fortieth street.

Frank A. Pipkorn, manager of the West Allis Lime and Cement Co., West Allis, Wis., is spending several weeks in Florida and Havana, Cuba.

The estate of the S. M. Johns Lumber Co. at Burrton, Kan., has sold its lumber business to Mr. Harry Harris. The new firm is the Harry Harris Lumber Co.

P. Austen Tones has been appointed assistant sales manager of the Knickerbocker Portland Cement Co., with offices at 30 East Forty-second street, New York City.

M. A. Callahan, sand man of Cleveland, Ohio, Mrs. Callahan, and their sons, David and Nelson, have returned from Los Angeles, where they have been spending the winter.

The Buffalo Lumber Exchange has elected these officers for the coming year: President, Horace F. Taylor; vice president, Clark W. Hurd; secretary and treasurer, John S. Tyler.

G. M. Corder, manager for A. L. Davis at Ft. Scott, Okla., the past two years, leaves March 1 for Haskell, Okla., to take charge of yard at that point for Fullerton Stuart Lumber Co.

T. L. Davies, Utica, Neb., who has been wintering in California, is expected home about April 1. He writes that he has had a pleasant stay though the weather has been quite cool at times.

The offices of the Waupaca Sand & Gravel Co., Waupaca, Wis., are to be moved from their present location in the Print Shop Building to spacious quarters in the Old National Bank Building.

At a meeting of the board of governors of the William Penn Highway Association recently held at Reading, Pa., it was agreed to push the building of a concrete road from Reading to Allentown.

Rufus C. Brown, Jr., of Cook & Brown Lime Co., Oshkosh, Wis., and treasurer of the Wisconsin Builders' Supply Association, has just returned from a vacation extending over a period of several weeks.

M. L. Helmer, of the Helmer Milling Co., Fond du Lac, Wis., has just returned to his home after a six week's tour of the West. Mrs. Helmer and Miss Catherine will remain at San Jose, Cal., for several months.

Home Lumber & Supply Co. of Ashland, Kan., has bought Roberts Bros.' yard at Rosston, Okla. E. J. James, former manager Home Lumber & Supply Co., at Rosston, has been promoted to assistant general manager, with headquarters at Ashland. He was succeeded at Rosston by J. A. Cook.

J. A. Sunderland, president of Sunderland Brothers Co., Omaha, Neb., is a member of the committee from Omaha co-operating with the council of the national defense in the purchasing of supplies for the army.

Knowles Lumber Co. has bought the Houston Doughty yard at Knowles, Okla. W. L. Bailey, formerly manager Houston Doughty Lumber Co. at Knowles is with the G. O. Terryman Lumber Co. at Blackwell.

Rounds & Porter Lumber Co., of Wichita, Kan., are preparing plans for buildings, sheds, etc., for their new lumber in Dodge City, Kan. They intend to open their new branch yard just as soon as materials arrive.

The Kansas Lumber Co. has purchased the yard and business of the Saunders Lumber Co. of Hutchinson, Kan. The Kansas Lumber Co. has moved to the old site the latter concern, closing their former yard at 16 East Second street.

S. L. Avery, president of the United States Gypsum Co., Chicago, has offered his yacht, the "Lenore," to the government in the event of war. Approximately forty other Chicagoans, including Mayor Thompson, have made similar offers.

R. Kruschinski, Greenleaf, Wis., has been appointed superintendent of the Brillion Quarry & Lime Works at Brillion, Wis. John Wuerger will take Mr. Kruschinski's place as superintendent of the quarry of the Greenleaf Stone Co.

The annual meeting of the National Fire Protection Association will be held at the New Willard hotel, Washington, D. C., on May 8, 9 and 10. Two of the days, sessions are to be held at the hotel. One day's session is to be held at the Bureau of Standards.

Fred Hurlbut, of the Fred Hurlbut Co., Green Bay, Wis., and president of the Wisconsin Builders' Supply Association, has been at New Orleans for the past several weeks, returning home on March 20. After a day or two at the office, he left for Cleveland, Pittsburgh, Harrisburg and other points in the East.

The Portland Cement Association, with headquarters at Chicago, Ill., has opened a district office, room 1022, First National Bank Building, Milwaukee, Wis. E. A. Dolan, formerly field engineer of the Universal Portland Cement Co., has been appointed district engineer in charge. The Portland Cement Association also has district offices in Atlanta, Dallas, Indianapolis, Kansas City, New York, Parkersburg, W. Va., Pittsburgh, and San Francisco.

The Traylor Engineering & Manufacturing Co. announces the opening of Western branch offices by John A. Traylor, their Western manager, with headquarters at Salt Lake City, Utah. The other branches will be located in Spokane, Wash., for the Northwest district, C. H. Abeling in charge, and El Paso, Tex., for the Southwest, Robert M. Peabody in charge. The opening of these two district offices enables the company to better take care of their ever increasing business of supplying heavy machinery in a more thorough manner.

The Universal Portland Cement Co., Chicago, announces the appointment of P. D. Van Vliet as publicity manager. Mr. Van Vliet left Cornell with the degree of civil engineer to take up work with the Arnold Co., Chicago, in hydro-electric and irrigation design, but when the irrigation bubble burst in 1910 entered the publicity bureau of the Universal Portland Cement Co., as writer of one of its semi-technical house organs. The work of the department has covered for many years a broad range, including the management of the cement shows, in addition to the normal activities of the bureau. While the Universal company is doing little national advertising at the present time, it is doing active work along dealer service and direct mail lines. One of the house organs that Mr. Van Vliet has edited since 1912 is an illustrated farm periodical of thirty-two pages, whose last issue was nearly 450,000.

"Loyalty, knowledge and recognition of the place he fills are among the important qualities to be possessed by the successful salesman," said F. L. Williamson, vice-president and sales manager of the Dewey Portland Cement Co., Kansas City, in a recent address at the Blatz Hotel, Milwaukee, Wis., before the Milwaukee Salesmanship Club. He declared that the day is gone when a firm hired a man on appearance, gave him a sample case, and sent him out to make customers. Mr. Williamson is president of the Kansas City Salesmanship Club.

To promote the use of its new product (tileback) in the building of homes, the Barkwill-Farr Co., Cleveland, Ohio, has added to its force J. M. Beville, who, for years, was connected with the Hydraulic Press Brick Co., at Cleveland, and more recently was with the United Fuel and Supply Co., of Detroit. One of Beville's promotion enterprises is a competition among architects, builders and future home builders for the best letters upon why "tileback" is unequalled in construction work, for prizes ranging from \$100 down. Letters are to be addressed to "Tileback" editor, Builders' Exchange, where the jury will judge them. They must be in by March 31.

The Hercules Cement Corporation, of Philadelphia, Pa. (mill at Stockertown, Pa.), has taken offices at 30 East Forty-second street, New York City, as headquarters for its sales department. E. B. Goode, Jr., who for the past four years has been Metropolitan district sales manager for the Lehigh Portland Cement Co., has been appointed sales manager of this corporation and will take up the duties of that office at once. Mr. Goode will immediately commence his organization work and will be established in his new headquarters by April 1. Mr. Goode has been active in the building material line for eleven years, having been with the Witherspoon Plaster Mills, Inc., before entering the services of the Lehigh Portland Cement Co.

I. J. Weatherford, who was associated for many years with the Nebraska Material Co., Lincoln, Neb., and who left that institution to spend, as he thought, his remaining days at a sanitarium, is back in the building material business and in good health. He is now associated with the Wichita Builders' Supply Co., Wichita Falls, Tex., as secretary. This firm also has offices in Paris and Amarillo, Tex. Mr. Weatherford opened the office for this firm at Paris just one month after the recent Paris fire and was there all during the reconstruction, moving to Wichita Falls on Jan. 1. In speaking of the business of the firm, he says: "The Wichita Builders' Supply Co. is a little bit different from the average material company, in that we handle structural and reinforcing steel, plate glass and store fronts as our heaviest lines, while the average material firm's heaviest lines are cement, plaster and brick. We do sell a little cement, however, having made a sale the other day of 36,500 barrels on one job."

#### NEW YORK DEALERS IN CONVENTION.

As this issue goes to press members of the New York State Builders' Supply Association are holding their annual convention at the Powers hotel, Rochester, N. Y. A complete report will be published in the April 7 issue.

#### PRODUCTION OF CANADIAN STRUCTURAL MATERIALS.

The production of structural materials in Canada in 1916 has been reported as follows:

	Quantity.	Value.
Cement, Portland.....Bris.	5,259,050	\$6,529,861
Clay products—		
Brick: Common, pressed, paving	.....	2,358,245
Sewerpipe	.....	716,287
Tile, pottery, refractories	.....	1,104,901
Kaolin	.....Tons	1,750
Lime	.....Bus.	5,482,876
Sand & gravel (not complete) (c)	.....	1,498,009
Sand-lime brick	.....No.	13,825,307
Slate	.....Sq.	1,262
Stone—		
Granite	.....	1,277,019
Limestone	.....	2,326,519
Marble	.....	118,810
Sandstone	.....	145,711
Gypsum	.....Tons	241,618
		730,831



# The RETAILER

## System Speeds Up Taking of Inventory

**Good Accounting Methods and Tool Checking Scheme Help to Cut Cost of Doing Business in Harvard, Ill.—A. G. Foster Tells Important Features.**

BY M. A. BERNS.

Publicity Representative, Universal Portland Cement Co., Chicago.

The Beck Coal & Lumber Co. maintains a large retail and wholesale building material yard at Harvey, Ill., a short distance from Chicago. Beside its main yard office, it maintains an office on the main business street where retail customers may place orders.

### Engineer Lays Out and Plats Yard Like a City.

"Last year we had an engineer survey our plant and make a plat of our entire layout," said A. G. Foster, vice-president. "Each building has a separate number and each alley or driveway a different letter corresponding to a city street name. The sections off of each alley, whether they are within buildings or in the open, are given a number corresponding to a house number so that by referring to section, say P-13, we locate it exactly, just as 315 Main street tells the location of a particular city lot. This is a great help when ordering men to put material into stock or to fill orders.

## New System Speeds Up Inventory.

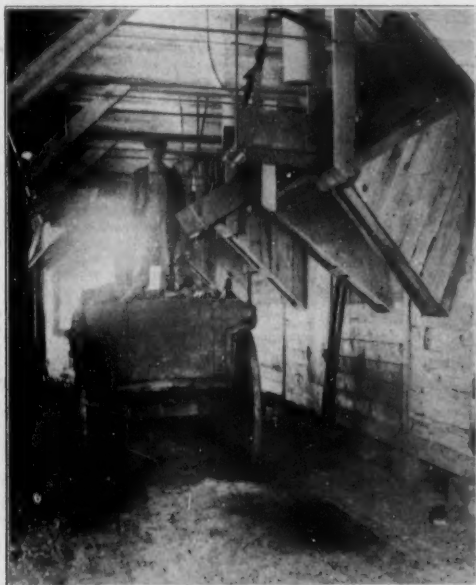
"This identification plan also is helpful when taking inventory. About two weeks before the close of the year I went around with the yard superintendent and listed on specially prepared sheets the material in each section, while he made a similar list on heavy cards which he tacked up in each section. (For style of card and sheet see accompanying illustrations.) The cards were numbered consecutively and my office sheets showed at the top the serial number of the corresponding cards.

"In the preliminary step I listed only the kind of material, leaving out the quantity and cost. The sheets were then taken into the office and the values assigned to each item—a long job in itself. Then in the two weeks before the final count was made, the yard superintendent tallied up the material in each section, so that by the end of the two weeks practically everything was counted and entered on the cards. After the count, any materials removed

from any of the sections were noted on the card. On Saturday, Dec. 30, counting was complete and all cards were brought into the office. The consecutive numbering of cards made it an easy matter to arrange them in proper sequence and to know at once if any were missing, and, if so, from which bins. A hasty check with our sales records showed also



**PETER BECK,**  
President Beck Coal & Lumber Co., Harvey, Ill.



**ELEVATOR PERMITS LOADING OF MATERIALS BY GRAVITY AT SMALL EXPENSE AND WITH GREAT SPEED.**

what materials had been shipped out during the two weeks so that we were able to check up very closely.

"Quantities from the cards were then entered on the office sheets previously mentioned, which by this time had all values entered so that the only remaining work was to make the proper extensions for total values. The recapitulation was equally easy, for, as our accounting system is divided under five main heads, it was only necessary to enter under each one of these heads the total from each sheet. This gave us a complete record and enabled us to start the year promptly with a clean set of books, instead of dragging out our inventory over a month or more.

"We plan to start a perpetual inventory system this year and to facilitate this will have cards tacked in each section showing the alley, section number and material stored in that section. Whenever any material is added to or taken from this section it will be noted on this card as well as on our office records. Then, too, should fire occur at any time, we would be able to prove, by referring to our office records, the kind and value of material in any particular section.

**Stores Molding Vertically in Dust-Proof Room.**

"Last summer we built an addition for storing molding. Previously we stored it horizontally in a room rather hard to keep clean. The new compartment is over 20' high and has a concrete floor and

dust-tight doors. It is divided into narrow sections separated by partitions, the horizontal braces of which start 4' from the floor and then run at 2' intervals. As molding varies in length by 2' intervals, this exact brace spacing enables one to tell at a glance the length of any piece of molding in a compartment. We also improved our storage room for hardwood flooring and have placed over the openings a dust-proof curtain which helps wonderfully to keep the flooring clean.

**Elevator Facilitates Unloading and Speeds Up Deliveries.**

"As a service feature, several years ago we installed a three-story elevator for speeding up deliveries. Bulk materials are unloaded directly from cars to a pit under the industry track alongside the elevator. An endless chain of buckets hoists material from the pit to a distributing belt which drops materials into the proper hopper in the elevator. There are bins for several kinds of coal, bulk lime, sand and stone. The hopper bottoms are practically at second floor level so that a short chute permits quick loading from hoppers to wagons. This is a strong service feature, particularly in rush seasons.

[illegible]

PRELIMINARY INVENTORY SHOWS ITEMS ONLY  
—PRICES (X) ARE ASSIGNED BY OFFICE  
WHEN CONVENIENT.

as it enables us to load up quickly and to speed up deliveries.

### Checking System Saves Tools

"The yard office is in the elevator building and adjoining it is a tool room which we installed last year. We had been having considerable trouble with lost, stolen or carelessly handled tools and decided to start a checking system. Each man is given a number and supplied with five brass checks bearing that number. In order to get any tool he must hand in a check for it at the tool room. This check is then hung on the nail from which the tool is taken so that we know at any time how many shovels, picks and hammers are out and what men

[illegible]

EACH CARD HAS A SEPARATE NUMBER—A SEPARATE CARD IS USED TO LIST THE MATERIALS IN EACH BIN OR SECTION.

have them. Previously, men lost considerable time looking for tools or in going to the main office for the more expensive tools; but now, with all tools stored at the one place, each employee always knows just where he can get what he needs. Each night all men are required to turn in all tools as well as coal sacks which are charged out in the same way. If any man fails to hand in his tools at night it can be detected in a moment by referring to the checks still in the tool room. When a customer prefers to hold coal sacks, the driver gives that information to the yard man, who then charges the sacks to the customer and credits the driver."

The Beck Coal & Lumber Co. has a very complete accounting system. Briefly, the accounting system is divided into five main divisions consisting of: one, lumber; two, building material; three, interior finish; four, paint and hardware; five, cement blocks. Over a year ago the company found that selling coal and ice on credit cost too much and so abandoned the practice. For that reason, the accounts for these materials are kept separately. The elimination of credit on coal and ice was advertised extensively and at first met some opposition, but, according to Mr. Beck, has not lost the company any business—on the contrary, the first year under the new plan showed a 10 per cent increase in volume of sales.

The company is a member of the Lumbermen's Association of Chicago, and of the Retail Coal Dealers' Association of Illinois and Wisconsin. It advertises consistently in moving picture theaters and in local newspapers and from time to time gives out various forms of novelties. This year it started a special feature consisting of a calendar so large and attractive as to be welcomed by the local retailers for display in their stores. Its distribution is practically limited to such retailers.

#### BREVITIES OF THE RETAIL TRADE.

The Olcott Lumber Co., with yards at Glenwood City, Emerald and Boyceville, Wis., has disposed of those three yards to the Interstate Lumber Co., Stillwater, Minn., owning and operating about twenty lumber and building material yards.

The Anderson Retail Lumber Co. of South Stillwater, Wis., has taken over the O'Reilly yard in Osceola, Wis.

C. L. Willey, Washburn, Wis., is going into the gravel supply business. He recently closed a deal whereby he is to furnish the Wachsmuth Lumber Co. at Bayfield with a large supply for building purposes.

The West Bend Lumber Co., Peter Klumb, manager, West Bend, Wis., will open a coal and wood yard in that city.

Greer & Butler, 420 Milwaukee street, Milwaukee, Wis., have purchased the good will and entire stocks of the Ormsby Mantel & Grate Co., 455 Milwaukee Street, Milwaukee, and are offering the stock at a sale through which they hope to reduce it. The Ormsby company was in business in Milwaukee for a period of thirty-five years.

The King Lumber Co., New Richmond, Wis., is to build a modern retail lumber and coal plant in Glenwood City, Wis. This enterprising company owns and operates yards in New Richmond, Cylon, Wis., and Chippewa Falls, Wis., handling all building materials.

The Mead Clark Lumber Co., Santa Rosa, Cal., with yards at Kingsburg and Santa Rosa, have purchased the property formerly owned by the Fassett Lumber Co.

#### CORMACK ADDS ANOTHER YARD.

The Consolidated Co. of Chicago, of which E. K. Cormack, president of the National Builders' Supply Association is the head, has purchased the business of Mortensen and Mickelsen, Seventieth street and Kenwood avenue, which is located on the Illinois Central and the B. & O. railways. The yard consists of an oblong piece of property about 100' wide and 300' long. A full line of materials will be carried at this yard, which has delivering facilities equivalent to about twelve teams.

Peter Mortensen has joined the sales staff of the Consolidated Co., while M. E. Mickelsen will remain in charge of the yard.

The Consolidated Co. now has five yards, three on the South Side, one on the West Side and one on the North Side.

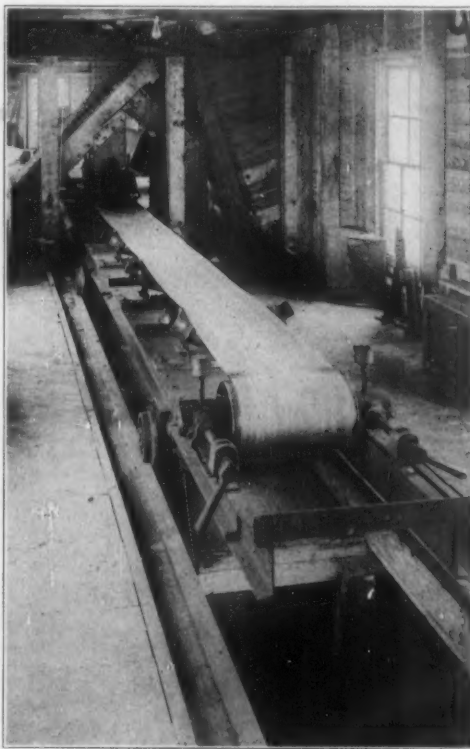
The South Connellsville Lumber Co., a flourishing retail lumber and builders' supply concern at Connellsville, Pa., has elected J. L. Stadler, president; J. Witney Soisson, secretary, and J. C. Henry, treasurer and manager.

#### NEW RETAIL INCORPORATIONS.

The Southern Building & Supply Co., of Lexington, Ky., capital \$20,000, to handle building supplies, contracting, and to succeed the Congleton Construction Co.; incorporators, W. T. Congleton, F. E. Kurzenknebe, J. E. Stone and E. Congleton.

The Union Cement & Lime Co., of Louisville, Ky., which at one time operated some big plants in Southern Indiana, which were closed down several years ago when the company went into the jobbing business, has filed amended articles of incorporation, reducing the capital stock of the corporation from \$100,000 to \$50,000. For the past few years the company has been handling face brick and other building supplies. The amendment is signed by John L. Wheat, founder of the business; Allen R. Carter, Temple Bodley, J. C. Parker, A. Lee Robinson and J. W. E. Bayly.

Speedway Lumber Co., Speedway City, Indianapolis, Ind.; capital, \$20,000, building material; di-



THIS BELT DISTRIBUTES MATERIALS TO PROPER BINS, HANDLES 6" COAL AND OTHER MATERIALS AND HAS NOT BEEN REPLACED IN TWO YEARS.

rectors, Joseph G. Brannum, Roy H. Davidson and B. P. Kingsbury.

The Reynolds Lumber and Coal Co., Reynolds, Ohio; capital, \$15,000; incorporators, B. H. Thompson, E. R. Dye and R. S. Banes.

Houston Brothers Co., Pittsburgh, Pa., in all their reports show that their business is going ahead at a mighty encouraging rate. Their chief trouble is in getting cars for shipment. Some of their plants have been forced to shut down on this account. They believe that the general demand for all kinds of builders' supplies is going to be the best ever this year.

The Parsons Lumber Co., Pittsburgh, Pa.; incorporators, J. C. Parsons, E. A. Kountz and William J. Graham.

The Center Lumber Co., Pittsburgh, Pa.; to deal in lumber and builders' supplies; incorporators, Joseph, Louis and John L. Broido.

Windsor Cement Co., Inc., Hartford, Conn.; to manufacture and deal in masons' supplies; capital, \$50,000; incorporators: Arthur A. Jackson, West Hartford, Conn.; Fred B. Lawton, North Kingston,

R. I.; Jos. A. Seguire, Prince's Bay, N. Y.

Pentreath Lumber Co., Clinton, Ind.; capital \$15,000; building materials; incorporators: Ralph M. Pentreath, Mark E. Nebeker and George H. Stevenson.

The Wilson-Walter Co., hardware and building materials, Green Bay, Wis., has increased its capital stock from \$30,000 to \$40,000.

#### Endorses Line Yard Retailers' Action.

The article entitled, "The Line Yard Retailers' View," published in the last issue of ROCK PRODUCTS AND BUILDING MATERIALS, relative to the position taken by a prominent lime yard firm on the ten-cent per barrel differential on the sale of Portland cement in a specific case, has created a great deal of comment in building material circles. The question under discussion amounts to "Has the cement manufacturer a right to fix the price at which a retail building material dealer shall sell his cement?"

A retailer in the Northwest who gives a negative answer to this question explains his attitude in the following letter:

March 20, 1917.

Editor, ROCK PRODUCTS AND BUILDING MATERIALS:

In reply to your article in March 7 issue entitled "The Line Yard Retailers' View" in which you invite the interested parties, and all others who so desire, to express their views so as to get the counsel of the whole industry in deciding a rather knotty problem, I desire to say I am expressing the opinion and policy of the oldest firm in the Northwest, who have been in the distributing business of building material for fifty years, and can endorse the action of the line yard man in the action he has taken in every particular.

The manufacturers of cement, or other building material, have no more cause to dictate to the retail dealer at what price his goods shall be sold, than the wholesale grocer has to dictate to the retail grocer at what price he shall sell sugar.

There is no comparison as to what should constitute a fair margin of profit for the retailer at the rate of ten cents per barrel, and the same margin per barrel to the manufacturer on the volume of business done by each.

The cement manufacturers, instead of having a line of customers who buy and sell their product, have placed the cement business on a basis of appointing the dealer as a collecting agency, as the manufacturers name the price he must pay and also the price at which the cement must be sold, the dealer taking all the risk and turns over the money to the cement company at a discount of five cents per barrel cash ten days from date of invoice.

If the cement manufacturers wish to introduce Standard Oil methods, then they should build warehouses in each town to distribute from on the same plan as the oil company, install storage tanks at convenient stations, and hire men with trucks to distribute from these storage warehouses. This would do away with the retail dealer and at the same time relieve him of the unpleasant duty of acting as a collecting agency for the cement manufacturers without his consent, and the manufacturers will be able to act without fear, or favor, toward the retail dealer.

Now, as to the other side of the case, if the dealer expects fair treatment from the manufacturer, the dealer must also be fair. I have known of cases where the representative of a certain mill went to the contractor with the consent of the dealer, also with an understanding as to price the contractor was to pay for the goods, and after an understanding had been reached that was satisfactory all around, the dealer would place the order with the competitor of the representative, who had been on the ground and made the sale, and the dealer's excuse would be that he did not want to have so many different brands of sacks.

The cement manufacturers are not the only people who are dictating policies and prices for the dealer—but the plaster manufacturers as well. The plaster manufacturers, however, are more modest in their methods and have not assumed the rule and ruin policy of the cement manufacturers.

If all parties concerned will assume business methods of buying and selling merchandise, instead of the manufacturer taking the retailer by the throat and attempting to choke him, then there will be no "knotty problems" to solve.

(Signature Omitted.)

The line yard firm, whose correspondence was printed in the last issue, augments its remarks in the following paragraphs.

Editor, ROCK PRODUCTS AND BUILDING MATERIALS:

We are interested in the reprint of our circular on page 15 of your March 7 issue and especially in the comments you make on it. We can see that the subject has so many faces that it is possible the main point at issue has been somewhat lost sight of and that is that the retail dealer in cement is entitled to fix the retail selling price of the product which he handles and not the manufacturer and that the manufacturer cannot expect the retailer of stock to sell at retail a product on which he comes in direct competition with the manufacturer.

As far as our own position is concerned and we find from the letters we are receiving that quite a number of the other dealers agree with us, we will be perfectly satisfied whichever way the manufacturers of cement decide to do, but we want them to decide whether we are to handle their cement to the consumer or whether they are going to.

(Signature Omitted.)



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It Has Stood the  
Test of Time

**New York Rubber Co.**

(INC. 1851)

N. Y. CITY, N. Y., CHICAGO, ILL.

FACTORIES:  
BEACON, N. Y.

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Back of every HERCULES (Red Strand) Wire Rope is a large modern factory, directed by experienced engineering and manufacturing departments, and operated by skilled workmen.



Reg. U. S. Pat. Off.

We make a study of Wire Rope working conditions, and are at all times glad to confer with you regarding your problems along this line.

WRITE US

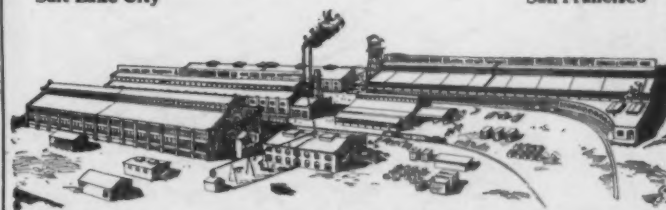
**A. Leschen & Sons Rope Co.**

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Salt Lake City

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Every Atlas Advertisement urges people to use concrete and stucco—develops possible customers for lime, sand, stone, lumber and other materials as well as Atlas Cement.

This advertising goes to millions of people every month. Why not get the full benefit of it? Put up the Atlas sign, send out Atlas blotters, pamphlets and other helps with which we will supply you. Let people know that you sell Atlas, "the most used cement."

We have a number of successful plans and suggestions for increasing sales and decreasing handling costs. Let us tell you more about them and what they will do for you. Send for our Atlas Almanac, a free monthly publication containing many valuable hints and business-getting suggestions. Use the coupon below.

### The Atlas Portland Cement Company

Members of the Portland Cement Association

New York Chicago Philadelphia Boston St. Louis Minneapolis Des Moines Dayton Savannah

**ATLAS CEMENT**  
The Standard by which all other makes are measured

The Atlas Portland Cement Co., 30 Broad St., New York, or Corn Exchange Bank Bldg., Chicago: Send me information about Atlas Cooperation, your suggestions for increasing sales, etc.

Name..... Address.....

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS



## Sell the Complete Line of Best Products—

known for the service back of them; their quality and completeness. The demand created by consistent and extensive advertising warrants a ready sale. Our exceptionally large stocks enable us to furnish all materials promptly and eliminates dissatisfaction encountered when deliveries are uncertain.

### HY-RIB and RIB-LATH

come in a complete assortment including—HY-RIB in four depths from  $\frac{3}{8}$ " to  $1\frac{1}{4}$ ". Each in various gauges.

RIB LATH, a most economical lath in three types and various gauges.

DIAMOND LATH, in two types and various gauges.

KAHN PRESSED STEEL Stud include channels from  $\frac{3}{4}$ " to 2" in size, studs with prongs from 2" to

12" and hollow studs in various sizes.

STEEL CORNER BEADS for the protection of plastered corners, in four types.

METAL BASE SCREEDS for use between cement base and plaster are supplied in three types.

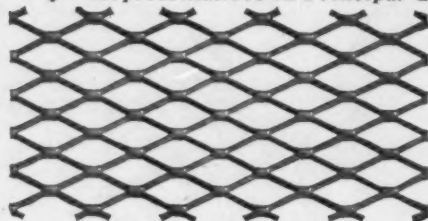
INSERTS for use in concrete slabs, beams or columns, for attaching fixtures, etc., are furnished in three types.

WRITE FOR CATALOGS, SUGGESTIONS AND QUOTATIONS

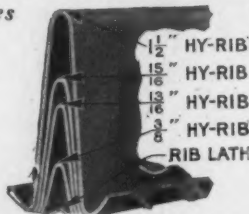
**TRUSSED CONCRETE STEEL CO.**

Department H-26  
YOUNGSTOWN, OHIO

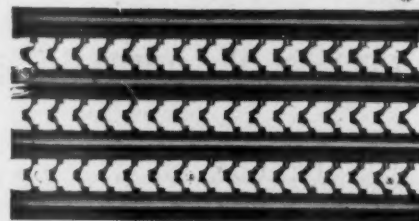
Representatives in Principal Cities



Detroit Diamond Lath in four gauges.



IT'S THE STRENGTH OF THE RIBS THAT COUNTS



Beaded Plate Rib Lath permits two-coat work instead of three

Channels without prongs,  $\frac{3}{4}$ , 1,  $1\frac{1}{2}$ , 2 inches.

Kahn pressed steel channel studs, 3, 4, 5, 6 inches; also 2 inches without turned flange

## The Future of Macadam Roads



Boulevard between Pleasantville and Atlantic City, New Jersey. Five miles long. 60 feet wide. Gravel with Glutrin Binder. Five years old.

is an assured success by the use of Glutrin Road Binder. Glutrin Bound Roads maintain a durable, firm surface for every month in the year. Glutrin Bound Roads mean more business for this year and future years to every contractor and producer of macadam road material.

FULL INFORMATION UPON REQUEST.

YOUR CO-OPERATION IS EARNESTLY INVITED.

**The Glutrin Paving Co., Hartman Bldg., Columbus, O.**

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS

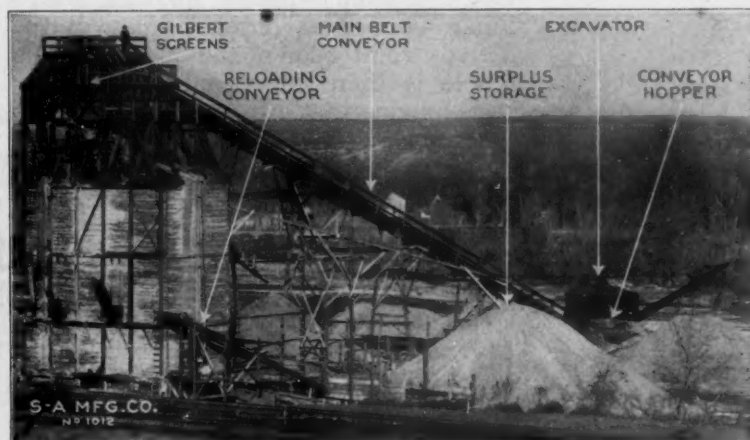


## Reducing the Cost of Handling Sand, Gravel & Stone

Every Crushed Stone, Sand and Gravel Producer has before him the problems of continually rising costs, and a high priced and depleted labor market, which are constantly growing more formidable.

There is only one way to meet these conditions—that is the Mechanical Way. And that is where we can be of invaluable service to you.

We do not experiment with another man's investment. A decade of successful experience has taught us how to apply principles and machinery to bring about the best results. By Best Results we mean Low Yardage Cost and a Standard Product.



*A Commercially Successful S-A Installation*

Three Hundred commercially successful "S-A" Gravel Washing Plants are in operation today—active evidence that we "know the game."

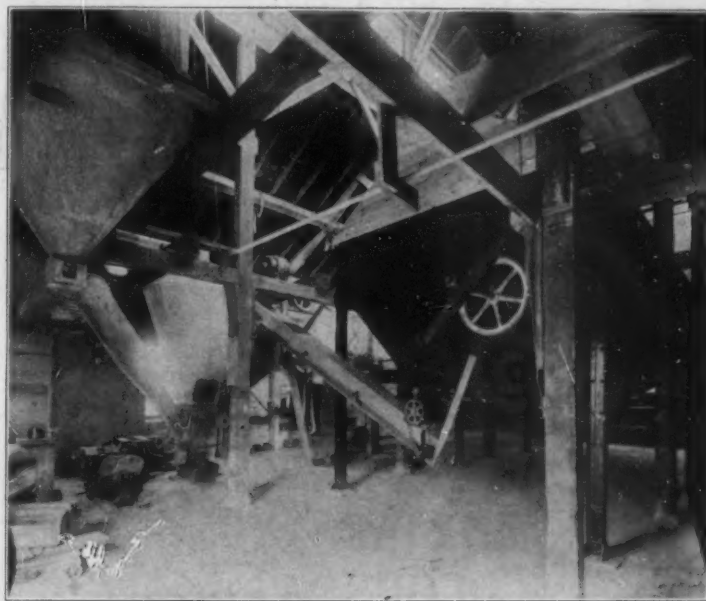
*We design and install complete sand and gravel washing plants, crushed stone plants, storage systems, etc. We have the organization and products that mean economy to you, and are at your service to consult on special details or submit layout for complete plant.*

**Stephens-Adamson Mfg. Co.**  
AURORA, ILLINOIS

NEW YORK, BOSTON, CHICAGO, LOS ANGELES, ST. LOUIS  
PITTSBURGH, SALT LAKE CITY, TORONTO, HUNTINGTON.

## Perfection

in product and manufacturing processes our aim; special equipment has been designed and built to carry out this idea.



Storage and Blending Bin, capacity 100 tons. Pulverizer, Air Separator and Sacking Bin, capacity 30 tons per day. Installed at Port Clinton, Ohio, plant.

**The National Retarder Company** 930 North Halsted St. **Chicago, Illinois**

*Mills at Port Clinton, Ohio, Webster City, Iowa*

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## The End of Your Conveying Belt Troubles

"DOUBLE STITCHED"

Will Become a Certainty When  
You Equip Your Plant with

# REXALL

## DOUBLE-STITCHED BELTING



Made from long fibre, 37½ oz. special twisted, hard woven Cotton Duck, double stitched through the inner core and outer casing and heavily reinforced at the edges. The whole is then impregnated with a self-lubricating preservative that keeps the belt soft and pliable. When properly installed, very large savings in your conveying costs are assured.

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Manufacture what is known as **QUALITY BRANDS**  
ORDER A CAR AND BE CONVINCED

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Plymouth Wood Fibre Plaster Best Bros. Keene's Cement

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Designing, Constructing and Operating Engineers

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CEMENT AND HYDRATED LIME PLANTS A SPECIALTY

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### MORTAR COLORS



The Strongest and  
Most Economical  
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Our Metallic Paints and Mortar Colors are unsurpassed in strength, fineness, and body, durability, covering power and permanency of color. Write for samples and quotations.

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SPECIALISTS IN

**Engineering Cement Works**

— AND —  
**Cement Making Machinery**

**THE IMPROVED EQUIPMENT CO.**

60 Wall Street, New York City

**COMBUSTION ENGINEERS**

DESIGNERS AND BUILDERS OF

COMPLETE GAS PLANTS

LIME BURNING PLANTS

SPECIAL INDUSTRIAL FURNACES

GAS BENCHES

GAS PRODUCERS



## "He Profits Most Who Serves Best"

BY HAROLD M. SCOTT.

Assistant to the President, Edison Portland Cement Co., New York City.

For the past few years wherever and whenever there has been a gathering attended by cement manufacturers and building material dealers, two words or thoughts seemed to dominate the discussions and deliberations—co-operation and consumer-differential.

Progress of a material kind has resulted from these conferences and discussions. There is a spirit of proper recognition by all manufacturers today of the dealers' interests, which, let us say—five years ago—seemed impossible of attainment.

Dealers in turn have materially aided manufacturers by wholeheartedly adopting new methods of sale, which the manufacturers have evolved after years of hopelessly inconsistent marketing. The dealer no longer plays one manufacturer against another.

In short, an intelligent understanding of the inseparable relationship one bears to the other has been realized.

Now that we are speaking the same language, greater changes of mutual benefit should be accomplished, but the spirit of contentment and self satisfaction which often follow the culmination of a successful issue must not be permitted to envelop our further efforts.

Our views must include a wider horizon than that world limited by the four corners of our own selfish interests. The exploitation of our neighbor, with the smallest possible return we can offer, is poor business philosophy. We must give that we may receive and in like proportion to our service will be our reward for that service. The Rotarians say "He profits most, who serves best."

The manufacturer produces, the dealer assembles and distributes, the consumer feeds us both. Our future thoughts must more fully include his best interests. I am not sufficiently altruistic to believe the building material industry is ready to embark upon an era of philanthropy. Instead I believe manufacturers and dealers alike have been playing Santa Claus to the general public too long. In most cases, unfortunately, we did not realize it, or realizing it, we did not know how to help ourselves.

Not long ago, I spent an afternoon with a gentleman who had dealt in masons' materials for some forty years. His father had founded the business, and he was just then preparing to pass it on to his son, the third generation.

Possibly there is a like institution represented by some of you gentlemen here today.

This dealer was located in one of the country's largest cities. A city which has witnessed a tremendous growth.

For many years there have been some eighteen to twenty dealers in this city (there are about that many today) and there has been sufficient business available to adequately supply all.

This man, reminiscing, told me that during the period 1873 to 1893, twenty years, at least one building material firm in that city had failed each year, some years witnessing more than one failure. His recounting of one financial disaster after another was appalling. Settlements ranged from ten cents to fifty cents on the dollar.

He led me to a window in his office from which we could see stretching below us miles of business blocks, factories, apartments and dwellings, representing millions of dollars in material alone. "Think Scott," he said, "every brick you see and every ounce of mortar was delivered by one or more of eighteen dealers, surely a sufficient volume of business for all. Yet failure, and, in some cases, absolute poverty has stalked those dealers. In my forty years I know of but three or four men out of the many engaged in the building material business who have left estates worthy of the name, and why—because of free, ungoverned, unlimited, ignorant and improper competition."

Let me add that this man was not a pessimist, but instead, an optimist—cheery and happy. He believes in the business and that the future holds much of pleasure and prosperity.

And now for the cement manufacturer—what of his financial showing in the past twenty years? Really it were better left unsaid. I can perhaps

best describe his prosperity by saying that the total bonded indebtedness of the cement industry would finance the construction of a concrete road, of very generous width, reaching from Boston to Denver, a distance of 2,142 miles, and this does not include any interest on investments which have never paid a penny in dividends.

True, there are some exceptions, but I believe my illustrations are not overdrawn or extravagant.

But the tide is turning, the future is fraught with more promising possibilities than lurk in the shadows of the past. Legislation of today is more reasonable with regard to business in general than formerly. No longer is the muck-raking magazine



HAROLD M. SCOTT.

the maker of public opinion. The young men of the industry should profit by the experience of those who have gone before.

Referring now to recent changes in the cement industry, manufacturers realizing dealers' needs increased the consumer-differential. I have heard considerable criticism of the ten-cent differential, and some of it has been quite logical.

I suppose my remarks of today would be most pleasing to your ears, were I to include here and now, in connection with this subject and the discussion we have heard today, that I, as one representative of the manufacturers, was completely in favor of a fifteen-cent differential or possibly a differential of twenty or twenty-five cents.

I do say to you that it is my best opinion that dealers should be receiving greater profit on their carload business than they have been and are even now receiving.

However, I want you to get my qualifications, I am wondering if we are not all thinking in a groove, when we try to justify and establish ten cents or fifteen cents or twenty-five cents per barrel.

In the first place, I think we are all wrong in talking barrels. We manufacture in bulk, load and ship in bags, and, in most cases, the consumer's inquiry is for so many sacks, or bags—fifteen bags, twenty bags, etc., not for three and three-quarter barrels or five barrels.

I am sure you will agree with me that the word "barrel" as applied to domestic business is today misleading and that a barrel or four sacks might well be discontinued as the unit of measure in the marketing of cement.

At this time, I am not ready to say what would be the best to adopt in its stead—sack, ton, or possibly hundred-weight.

You can readily see how a change in the unit of measure might affect this differential question.

It will also be well to ascertain dealers' costs in handling carload business, and what percentage of their total volume of cement business is represented by carloads.

This I regard as highly imperative and I hope steps along this line will be taken by your association in the near future. All manufacturers would, I am sure, be pleased to secure any authentic data in this regard that you might compile.

An unreasonably high margin of profit would not only burden the consumer and probably cut down volume for the manufacturer, but it would invite increased competition for the dealer.

This is a subject of importance to us all, and, therefore, let it be given the most careful study, so that any changes that may be made, be proper, consistent and fair to all.

Were it possible, I believe exclusive marketing through dealers would solve this problem. Conditions governing the service rendered by dealers varies in almost every locality. The dealers of Providence know conditions in their own market better than any manufacturer, and I believe can be trusted to properly handle the situation.

Manufacturers now are largely confining their quotations to dealers.

How then promote exclusive marketing through dealers? My recommendation is through the offices of this and kindred associations.

See that every manufacturer regularly competing in this association's territory is equally or fairly represented. And, here is the value of district organizations such as have been developed throughout the Middle West. Given two dealers in one town, a difficult problem is presented if each of them is to handle ten or twelve different brands of cement—but the twenty or twenty-four manufacturers can all be represented if a group or district is the unit of consideration instead of the town or city.

Another suggestion, with regard to profits through your association, promote better methods of marketing and by that I mean no reference to "price fixing" or "price agreements." I mean development into sales of leads and prospects which are promoted by manufacturers, but which often receive absolutely no impetus by the dealer.

As an illustration, let us consider concrete roads. What, if anything, have the dealers done toward developing this tremendous field of cement consumption?

There is nothing mysterious about the construction or promotion of a concrete road. It is a commodity very much needed today, the purchase of which gives the buyer 100 per cent value and to the seller a reasonable profit.

You stock and offer for sale every material required in the construction of a concrete road. Here is a field for profit, new and undeveloped.

Referring again to the point I made earlier in my address "He profits most who serves best," the construction of concrete roads is a factor of tremendous service to this whole country. Any reduction in cost of transporting the farms' products to market surely means a reduction in price of every necessity of life.

Such roads of permanence and economy greatly enhance real estate values. Linking the city and the country by arteries of ready access, 365 days a year, concrete roads bring a betterment of communities generally through better schools, better churches, better citizens.

How very frequently during the past two or three years, we have heard reference made not only to the scarcity of labor, but also to the inefficiency of that available.

Until recently, little thought has ever been given to the welfare of common labor. Supply exceeded demand so we rather indifferently thought "let 'em shift for themselves."

In the economic development of this country and its industries, that we may compete on an equal basis in the world markets, the proper housing of labor presents one of our first problems. The United States must shortly meet the unrelenting competition of the world, and especially of those countries who have been so sorely tried by war. If we are to maintain a fair share of this highly competitive business without a severe shrinkage in the wage of labor, then we must thoroughly organize for efficiency of production.

A workman with a contented home will produce

more and better than one housed in some make-shift shanty. In this work the building material dealer must play a leading part.

But continuing on sales problems, suppose every dealer in attendance here today were to leave this room and board a special train for a tour of inspection of the material yards in the principal cities of the United States, just think what might be accomplished. You would each return to your home filled with inspirations, new ideas and new methods. Your own business would be materially benefited and your community also.

I know of one New England firm which sends its division managers on just such trips each winter. That firm is one of the most progressive and I'll venture one of the best-paying establishments in all New England.

Let me illustrate what might be seen on this special tour by telling you something of Cleveland, Ohio. From 1907 to 1914, a period in which the business conditions of the country were below normal, this city went steadily forward. Population increased each year, bank clearings increased, labor was busy, new construction never faltered.

To the building supply dealers of that city I give much credit for that prosperity and healthy business conditions. There are, I believe, some thirty dealers regularly engaged in buying and selling masons' materials in Cleveland. They are all boosters. They are actively interested in all civic affairs. In every way they have encouraged building and building of a substantial character.

The modest wage-earner is better housed in Cleveland than in any city of which I have knowledge.

Through the Building Material Exchange the most harmonious and constructive spirit is fostered between dealer and contractor.

Their city salesmen are not also bookkeepers, collectors and yardmen. They are salesmen exclusively and they know what they are talking about.

The dealers' yards are models of efficiency. Great brick and concrete warehouses, with paved driveways and the most economical means of unloading and loading materials.

I am not speaking of one or two concerns, but of the progressiveness of all.

Through a properly financed and properly directed department of this association, the advantages of such a "special tour of investigation" can be presented to you by correspondence and by frequent district meetings.

An editorial in a recent issue of the Ohio State Journal said, in part:

Many people have an idea that when a purpose is organized that they can go off and leave it and the organization will do the rest. There are hundreds of aims organized and abandoned as soon as the organization is effected.

Organization is simply machinery which the intellectual and spiritual forces are to use for certain purposes. It is a means, not an end. So many make it an end, nothing more. The only thing that will make an organization amount to anything are the men and women in it.

Could anything more apropos be applied to most builders' supply associations?—and yet there is so much that can be done by the dealers through organized effort financed and continued.

But gentlemen, if you think \$5.00 or \$10.00 or \$20.00 is a sufficient amount of dues or membership fee for your Association, be fair with yourselves and your officers and don't expect to get greater value out of your organization.

You unhesitatingly pay \$100, \$200 or even \$500 each year in premiums on life insurance. You carry fire insurance on your buildings and equipment—why not then by the same reasoning, increase the insurance on your business itself. Protect and increase that thing you call custom.

There is a solution to the five-cent or ten-cent differential on cement sales and to many of your other vexing problems. There are profits untouched that need only uncovering. Develop these opportunities, make your business worthy of the efforts you supply it.

Leave something to your son and to his son other than an all-consuming distrust in your competitors and contempt for the business in general.

In these times of international strife, when we are so forcibly awakened and exposed to the avarice and jealousy of the old world, effective, intelligent organization and co-operation is distinctly the duty of every industry in the United States. Let us be the greatest service then, not as individuals, but as an association and industry of actual ability.

## Cost of Doing Business.\*

BY GEORGE D. HAWKINS.

The subject on which your committee begs to report is by no means a new one, having been discussed and argued at considerable length at practically every gathering of business men in recent years. It is a subject of vital importance to each man here, and is receiving very careful attention and consideration from the successful men in every line of business today.

Conditions are changing; competition is becoming keener; margins of profit are being reduced. The question facing each of us is how to meet these changing conditions so as to preserve our profits and satisfy the demands of our stockholders for dividends. Competition on the one hand, and advancing costs on the other hand, have threatened to entirely eliminate the ever narrowing margin of profit.

Thoughtful men are seeking the answer through a study of the cost of doing business and by means of co-operation through associations such as our own. A scientific study of costs discloses the fact that there are a number of items entering into the cost of doing business that are frequently lost sight of on account of a lack of adequate accounting systems. Failure to take into account such items as depreciation, interest, reserve for bad debts, etc., may easily turn an apparent profit into an actual loss.

Another error, strangely common, though apparent on first analysis, is the custom or habit of adding the percentage of profit desired to the cost of an article to determine the selling price. To illustrate, we were recently talking with a dealer in a city that boasts a population of 250,000, where we had expected to find a high degree of efficiency. This dealer was adding 30 per cent to his cost price, and though admitting his cost of doing business was 16 per cent, thought he was making 14 per cent net profit, overlooking the fact that 30 per cent added to the cost gives only 23.07 per cent profit based on the selling price, which is the basis used in arriving at the percentage of cost.

Most architects base profit and loss on cost, and there is no doubt that many business failures are due to this practice. If an article cost \$1.00 and the selling expenses are 18 per cent, which we believe would be a fair average on the retail lumber and builders' supply business, in order to make 10 per cent net profit, must sell for \$1.39 and not \$1.28.

An article costs f. o. b. cars your siding \$30.00. You figure from past record that it costs 18 per cent to handle. You want net profit of 10 per cent on sales price. The total of these two items is 28 per cent. Twenty-eight per cent of \$30.00 is \$8.40. Thirty dollars plus \$8.40 is your selling price, \$38.40.

The above figures are erroneous, and should be as follows: Expense based on selling price, 18 per cent; net profit desired on selling price, 10 per cent; total, 28 per cent. Selling price of 100 per cent less 28 per cent, leaves 72 per cent on first cost (\$30.00). Seventy-two per cent equaling \$30.00; 1 per cent equals 41.8 cents and 41.8 cents multiplied by 100 equals \$41.80, or the correct selling price.

You will note by the above that the difference between \$41.80 and \$38.40 is \$3.40, an amount which is, I am very certain, often lost account of, and if you are breaking even when figuring under method number one as above, this entire \$3.40 is net profit, if your method of figuring is as per method number two.

To put it another way, if twenty-five is 25 per cent of 100, it is only 20 per cent of 125; and 25 per cent increase over cost is 20 per cent profit on the selling price.

The Ohio Builders' Supply Association, after quite an exhaustive study of costs in the city of Cleveland, has published a bulletin entitled "Facts on the Cost of Doing Business," submitting figures compiled by Earl Ross, a thorough accountant, giving the following costs: Cement, .449 per barrel; plaster, \$1.79 per ton; hydrated lime, \$2.50 per ton; brick, \$5.115 per thousand; crushed stone, \$1.175 per ton. An interesting feature brought out by this

investigation is the fact that the overhead costs, which include salaries, office supplies, insurance, taxes, rent, depreciation, interest and such miscellaneous items as telephone, postage, heat, light and donations, were almost the same regardless of the size of the firm.

The question of interest on investment to be charged in the costs is one on which accountants differ. It is self evident, however, that the capital invested in the business could be loaned out at, say 5 per cent on gilt-edged security without assuming the risks and hazards incident to the conduct of business. It would appear, therefore, that this would constitute a proper charge against the business and should be included with other costs in exactly the same manner as rent would be included where a rental was actually paid. Some authorities figure interest only on past due accounts, and arrive at the charge by averaging the time taken on their accounts and adding a fixed percentage to all sales, as it is impossible to determine at the time any sale is made how long that account will remain unpaid.

There will doubtless be details entering into a cost finding system on which it would be impossible for all to agree, but the most important thing in this connection is that there would be some uniform basis recognized for figuring costs and that sufficient publicity be given this matter that those who have been guessing, and generally guessing too low, may be educated to a better knowledge of costs.

I. B. Hanks, speaking before the Ohio Lumber Dealers' Convention last week, said: "I find that 90 per cent of the demoralized conditions of local markets is directly traceable to the lack of knowledge on the part of one, two, three or half a dozen dealers, of the cost of handling a thousand feet of lumber. The fact that they do not know what it is costing them to do business results in their quoting prices that do not allow a fair and legitimate profit."

Mr. Hanks cited an instance in support of the above where the retail lumbermen of one of our large cities, at a meeting each submitted his cost of handling a thousand feet of lumber as figured to the best of his ability. These figures varied from \$3.00 to \$9.00 per thousand feet. Perhaps an average of these figures would not have been far from correct.

The installation of a cost-finding system need not be a source of apprehension to any. The thought of the committee is very well stated by Semour Walton, a recognized authority on auditing and cost finding, as follows: "There is almost no end to the detail to which a cost-finding system may be carried. In the hands of an over-zealous accountant or one whose range of vision is narrowed by the intricacies of his calling, an over-elaborate system may be installed that will result not only in financial loss, because of the actual expense of operating the cost-finding machinery, but which may act as a clog on the actual machinery of production. The introduction of a satisfactory cost system requires, therefore, more than a knowledge of cost-finding methods. It requires an intimate knowledge of the industry itself, of the particular institution, and a keen discrimination regarding the detail to which the cost-finding is to be carried."

Supplementing the author just quoted, there are firms whose business it is to sell office equipment: books and printed forms, who have worked out and urge the adoption of elaborate and expensive "systems." It is not necessary, however, for a dealer in building materials to keep a complicated set of books in order to know his cost of doing business. The best system is the one that tells what you need to know with the least effort.

In a large business which is highly departmentalized, the distribution of labor and overhead costs involves considerable detail, but so valuable is an accurate knowledge of detailed costs, in our opinion, the information thus gained will enable the dealer to effect economies in the handling of his business that will more than pay the necessary expense of the cost-finding machinery. It furthermore proves a powerful stimulus to department heads and foremen to know that such a record is being kept and that their efficiency is being registered and tabulated in a scientific manner.

As already indicated, it is not sufficient that one  
(Continued on page 38.)

\*Report of the "Cost" Committee of the West Virginia Lumber and Builders' Supply Dealers' Association submitted at the recent convention at Charleston. Mr. Hawkins was chairman of the committee and, at the meeting, was elected secretary of the association.



## Retailers' Association News

Edward K. Cormack, President, National Builders' Supply Association, Chicago, Ill.  
 Charles M. Kelly, President, New England Builders' Supply Association, Providence, R. I.  
 Frank H. Genung, President, Mason Material Dealers' Association of New Jersey, Newark, N. J.  
 W. O. Holst, President, Ohio Builders' Supply Association, Toledo, O.  
 B. L. Grove, President, Del-Mar-Col Building Material Dealers' Association, Washington, D. C.  
 C. A. Short, President, W. Va. Lumber and Builders' Supply Dealers' Assn., Shinnston, W. Va.  
 Geo. F. Erich, President, Building Material Dealers' Assn. of Eastern Pennsylvania, Allentown, Pa.  
 J. A. Mahlstedt, President, Building Material Dealers' Association of Westchester County, N. Y., New Rochelle, N. Y.  
 Edwin Schmidt, President, Long Island Coal & Building Material Dealers' Association, Mineola, N. Y.  
 M. T. Bannigan, President, New York State Builders' Supply Dealers' Association, Utica, N. Y.

### SOUTHERN RETAILERS HOLD FIRST MEETING.

The first step toward the organization of a building supply dealers' association for the southern states was taken Friday morning, at a meeting at which were present a number of supply men from New Orleans and Birmingham. E. H. Defebaugh, publisher of ROCK PRODUCTS AND BUILDING MATERIALS and a prime mover in the enterprise, opened the meeting and made a little talk on the necessity and value of co-operative business.

R. A. Thompson, president of the Building Material Dealers Association of New Orleans, was elected chairman of a temporary organization, which will effect a permanent organization for Louisiana and Mississippi. John Girault, secretary of the New Orleans association, will act as secretary of the temporary organization for the two states. Drafting of constitution and by-laws was waived, pending development of the campaign to interest all the dealers in the territory.

The dealers who will be asked to join together for the common cause in the two states number about 280. Letters will be written them by the temporary organization, by their New Orleans associates and by the manufacturing interests serving them. At the conclusion of the meeting, which was held from eleven o'clock on in Banquet Hall "E" of the Grunewald Hotel, the dealers were guests of Mr. Defebaugh at luncheon.

Members of the New Orleans organization present were: R. A. Thompson, president; J. J. Voelkel, president of the J. J. Clark Co.; Walter Jahneke, of Fritz Jahneke, Inc.; H. Ball Bauers, of the Carolina Portland Cement Co.; Allen Tupper, V. H. Demourelle, and John Girault, secretary, with offices in the Wells-Fargo Building. D. R. Curtis of the Dixie Portland Cement Co., and C. N. Wiley of the Standard Portland Cement Co., both of Birmingham, also were present, visiting New Orleans for the meeting.

Later meetings on the program for the organization of the South are: Florida dealers at Jacksonville, Fla., Hotel Windsor, March 21; Georgia and South Carolina dealers at Savannah, Hotel De Soto, March 23; and Alabama and eastern Tennessee dealers at Birmingham, Hotel Hillman, March 30. The New Orleans men are enthusiastic and will, they say, do everything possible to make the other meetings a success and to assure the success of the cause throughout the South.

Everybody had his say at the meeting and, though it was not large, the spirit shown, together with the standing of the firms represented, give promise of early success. Credits, selling costs and transportation difficulties were the matters chiefly discussed, all with a view to better and better co-operative effort. The United States Steel Corporation was pointed to as an example of what co-operation can do and similar benefits were prophesied for supply men when they complete their co-operative organization.

Mr. Defebaugh, who opened the meeting and acted as temporary chairman, in discussing the beauties of co-operation, said that one thing well worth developing was country business. The rural districts, he said, were in a most prosperous condition and could, by intelligent effort, be shown that it is to their interest to build good buildings and good streets and good roads. The increasing comforts of the country, he said, were making people want to live in the country, and this, he said, was good

for everybody, the supply men no less than the others.

J. J. Voelkel regretted the failure of more country supply men to show up at the meeting, to which H. B. Bauers replied that with but a few exceptions the towns in the territory outside of New Orleans are one dealer towns and that he thought no great initial showing could be expected from men having no home competition. It is expected that transportation and cost systems will interest them none the less.

### OHIO DISTRICTS START YEAR ENTHUSIASTICALLY.

Schedule of meetings for the next two months has been sent out by the Ohio Builders' Supply Association, and H. S. Gaines, assistant to the president, reports the largest and most enthusiastic meetings he has ever attended. Everywhere testimony, is offered by the members of the association that gives absolute proof of wonderful strides in advancing the interests of the dealers through the proper kind of association work.

On March 6, members of the Springfield district sat down to a banquet at the Arcade hotel, Springfield, which was followed by a business session presided over by Chairman S. P. Harris, of the Springfield Coal & Ice Co.

Members of the Lima district held their meeting in that city on Thursday, March 8, with a banquet at the Hotel Norval. E. C. Mackenzie, of the Fidelity Coal & Supply Co., Lima, was elected chairman of the district. The other officers chosen are James McDonald, McDonald Lumber Co., Leipsic, vice-chairman; Cliff N. Wood, Cliff Wood Coal & Supply Co., Lima, secretary; H. F. Light, Light Lumber Co., Columbus Grove, treasurer.

At the meeting of District No. 16, held at Newark on March 13, William H. Smith, of the P. Smith Sons' Lumber Co., Newark, was elected chairman; R. Clay Van Vorhes, of the Universal Supply Co., Newark, was chosen secretary and A. R. Webb, of Webb & Webb, Newark, was selected treasurer.

At the meeting of District No. 17, held at Zanesville on March 14, W. R. Harris, of Harris Bros., Zanesville, was selected chairman. The other officers are: D. C. Thompson, Orme-McMahon-Thompson Co., Cambridge, vice-chairman; O. J. Hartmeyer, Zanesville Grain & Builders' Supply Co., Zanesville, secretary; G. L. Breithaupt, G. L. Breithaupt & Son, Dresden, treasurer.

A splendid attendance is reported at the meeting of district No. 14 held at New Philadelphia on March 15. R. W. Emerson of the Union Lumber Co., New Philadelphia, was elected chairman. The other officers are: W. G. Smith, The Twin City Lumber Co., Urichsville, vice-chairman; C. N. Immel, The Immel Feed & Milling Co., Canal Dover, secretary; W. H. Streb, Streb Brothers Co., Zoar, treasurer.

### VIRGINIA DEALERS TO ORGANIZE.

A number of retail building material dealers in the state of Virginia have for some time been discussing the formation of a state organization, with the result that C. S. Adams of Lynchburg has completed arrangements for a meeting to be held at the Jefferson hotel, Richmond, Va., on April 3 and 4. A number of prominent men who have taken part in association work in other states have consented to be present and assist in the work.

### N. B. S. A. ORGANIZES MICHIGAN.

Just as we go to press, we are informed by L. F. Desmond, of the National Builders' Supply Association, that the Michigan Builders' Supply Association was formed at a meeting held at the Otsego hotel, Jackson, Mich., on March 20.

The by-laws adopted are the uniform set which have been prepared by the National association for state organizations. In accordance therewith the following officers were elected:

President, Fred Wells, Rathbun & Kraft Lumber Co., Battle Creek.

First vice-president, George Calvert, Calvert Bros., Detroit.

Second vice-president, C. B. Elwood, Watts-Moorhouse Co., Jackson.

Third vice-president, A. J. Wilder, J. A. Wilder & Son, Albion.

Treasurer, L. F. Dawson, Martin-Dawson Co., Ypsilanti.

The secretary of the state organization will be appointed in the next few weeks by the board of directors, of which Mr. Wells is the president.

Through the organization of the Michigan association another state body becomes affiliated with the national. Recently a state organization was formed in Indiana.

### IOWA TO BE ORGANIZED.

L. F. Desmond, of the National Builders' Supply Association, held a preliminary meeting in Iowa on March 8 and is now preparing to hold a series of meetings in that state in the next two weeks, with the object in view of forming the Iowa Builders' Supply Association.

### FT. WAYNE ENDORSES STATE ASSOCIATION.

District No. 2 of the Indiana Division, N. B. S. A., held a meeting on March 15 at Ft. Wayne, Ind., and ratified the action of the local officers in the organization of the state association. The firms represented were:

Wm. Mollerling & Sons, Ft. Wayne, Ind.  
 E. M. Baites & Co., Ft. Wayne, Ind.  
 Ft. Wayne Builders' Supply Co., Ft. Wayne, Ind.  
 Fishback-Allenwood Co., Ft. Wayne, Ind.  
 Joquel-Schulz Co., Ft. Wayne, Ind.  
 Robt. Hixon Lumber Co., Garrett, Ind.  
 New Haven Lumber Co., New Haven, Ind.  
 Spangler & Grunloff, Churubusco, Ind.  
 Huntertown Grain Co., Huntertown, Ind.  
 Cline Bros. Lumber Co., Kendallville, Ind.  
 John Diebele Estate, Kendallville, Ind.  
 Milo J. Thomas, Corunna, Ind.  
 Kirsch-Sellemeyer & Sons, Decatur, Ind.  
 A. P. Kelly, Toccoa, Ind.  
 Ossian Lumber Co., Ossian, Ind.  
 Elastic Plaster & Coal Co., New Haven, Ind.  
 Grabill Lumber Co., Grabill, Ind.  
 Berne Lumber Co., Berne, Ind.  
 A. Wasmuth & Sons, Roskohe, Ind.  
 Studebaker Grain & Seed Co., Bluffton, Ind.  
 Bash & Co., Huntington, Ind.  
 H. C. Arnold & Son, Bluffton, Ind.  
 S. E. Kessler, Columbia City, Ind.  
 Home Lumber Co., Huntington, Ind.  
 No. Manchester Lumber Co., No. Manchester, Ind.

### BIG MEETING OF JERSEY DEALERS.

The regular annual convention of the Mason Material Dealers' Association of New Jersey was held at the Hotel McAlpin, New York City, March 15. It was a rousing meeting, attended by representatives of seventy retail establishments operating in the state of New Jersey.

Frank H. Genung, who has served as president for a number of terms was re-elected over his protest.

Forty or more of the associate members were represented at the above meeting in which the relation between the manufacturer and the dealer was discussed with a great deal of interest on both sides.

With all of the papers and addresses arriving late, it will be impossible to give the detailed report in this number, but a more ample report will appear in our issue of April 7.

The annual convention of the Wisconsin Drainage Association will be held in Madison, Wis., March 27-28, instead of March 21-22, as first announced. Extensive arrangements are being made to entertain the delegates, among whom will be farmers, drainage engineers, and contractors, drainage commissioners, and manufacturers of tile and ditching machinery.

## Wisconsin Commences Active Work.

The Wisconsin Builders' Supply Association opened its campaign with a big district meeting at Sheboygan on March 6.

The meeting was opened by W. J. Nuss, secretary of the Pantzer Lumber Co., Sheboygan, who is also a member of the board of directors of the state association, by setting forth the objects of the organization and called upon the dealers to support the association, both morally and financially, stating that the educational campaign on costs which will be carried on by the association will more than repay for any finances paid into the treasury.

F. R. Carty, executive secretary of the association, was introduced and explained in detail the constitution and by-laws and called upon the members for voluntary applications. Everybody signed, thereby becoming members of the association. All agreed that it was to the interest of the individual dealer that every possible effort be made to have the dealers who were not present become members as soon as possible.

At this point, the district was permanently organized by the election of Henry Sheele of Sheboygan as permanent chairman and C. K. Arp, Plymouth Lumber & Fuel Co., of Plymouth, as permanent secretary.

After the permanent organization was effected the conditions in this territory were generally discussed. Plymouth was then selected as the next place of meeting for District No. 4 on Thursday April 5.

Those present were:

W. J. Nuss, Pantzer Lumber Co., Sheboygan.  
F. R. Carty, executive secretary, Oshkosh.  
Henry Sheele, Sheboygan.  
C. K. Arp, Plymouth Lumber and Fuel Co., Plymouth.  
Wm. Knauf, Knauf & Tesch, Chilton.  
W. N. Killen, Cato.  
John G. Johnson, Manitowoc.  
J. Koch, Brillion Concrete Works, Brillion.  
Wm. Hildebrand, Jr., Hildebrand Manufacturing & Supply Co., Sheboygan.  
B. W. Meidl, Whitelaw Lumber Yards, Whitelaw.  
Ira Beyer, Mishicot.  
Louis Laun, Laun Bros., Elkhart Lake.  
W. D. Scott, W. D. Scott Co., Glenbeulah.  
Miss Elfreida H. Roth, Sheboygan Lime Works, Sheboygan.  
O. W. Timms, J. H. Timms Co., Plymouth.  
J. B. Laun, J. B. Laun, Kiel.  
F. Murphy, Manitowoc, Land & Fuel Co., Manitowoc.  
O. H. Hertzberg, Hertzberg Bros., Sheboygan Falls.

The meeting of District No. 1 was held at Green Bay on March 7. The members went into session at 10:30 a. m. The session was opened by Fred Hurlbut of the Fred Hurlbut Co., Green Bay, who is also president of the state association. Mr. Hurlbut set forth in a few well-chosen remarks the objects and aims of the association and suggested that those present become members by signing applications and that this district be permanently organized. This suggestion was acted upon with the result that H. A. Barkhausen of Green Bay was elected permanent chairman with Wm. F. Kotil of Haever's Co. as permanent secretary. At this point the members recessed and were entertained at dinner at the Beaumont Hotel by Mr. Hurlbut. This dinner was a very successful affair and placed Mr. Hurlbut as the hosts of hosts. Every one voted him a success and wished his administration every success. The following menu was served:

Oyster Cocktail, A La Cement	Chicken Soup with Water Proofing	Consomme Julienne with Eaves Trough	Head Lettuce	Olives	Green Onions with Coal Lumps
Fillet of Halibut with Coke	Fricassee of Chicken with Gypsum Bags	Boiled Ox Tongue with Lime Ball	Crab Meat A La Brick Bat	Cutlet of Goose A La Plaster	Prime Roast Beef A La Lath
Queen Fritters, Paint Sauce	Roast Leg of Veal with Coal	Mashed Potatoes Roofing	Sugar Corn with Cement	Tomato and Tile Salad	Cherry Pie
Cabinet Pudding, Pineapple Sauce	Chocolate Sundae	American Cheese	Salted Wafers	Fruit	Buttermilk
Assorted Cake	Swiss Cheese	Coffee	Milk		

At 1:30 the meeting re-convened.

Stephen D. Balliet of the Stephen D. Balliet Supply Co., Appleton, was introduced and talked for a few minutes on costs. The chairman then introduced F. R. Carty, executive secretary, who made a few remarks relative to dealers' costs and then offered to take up any questions concerning conditions which members might care to ask. At this point, a general discussion ensued and a plan was mapped out whereby the executive secretary could spend time in the territory and be of material assistance to the members. Green Bay was selected as the next meeting place and the date was set for Wednesday, April 4, at the Beaumont Hotel at 10 a. m.

Those present were:

Stephen D. Balliet, Stephen D. Balliet Co., Appleton.  
Fred Hurlbut, Fred Hurlbut Co., Green Bay.  
H. A. Barkhausen, Green Bay.  
Wm. F. Kotil, Haever's & Co., Green Bay.  
F. R. Carty, executive secretary, Oshkosh.  
Enos Calburn, Abrams Lumber Co., Green Bay.  
Wm. F. Piehl, Miller-Piehl Co., Seymour.  
J. A. Flashley, Flashley Bros. Co., Green Bay.  
Walter Nowack, F. C. Nowack Co., Menominee, Mich.  
Robt. A. Upham, Upham & Russell Co., Shawano.  
C. O. Lyon, Lyon Bros., Menominee, Mich.  
W. J. Schumacher, Shawano Fuel Co., Shawano.  
H. G. MacFarlane, Oconto.  
J. W. Otis, Antigo.  
John J. Basten, New Franken.  
Jas. A. Muhsart, Oconto.  
E. E. Conell, The Duvall Co., Kewaunee.  
Roland C. Bach, Bach Kieweg Co., Kewaunee.  
Haeverst Co., Green Bay.  
Art A. Curtis, Wisconsin Bldg. Material Co., Scofield.  
D. X. Brands, Union Manufacturing Co., Oconto Falls.  
A meeting of District No. 2 was held at the Valley Inn, Neenah, Wis., on March 8. After supper, which was served in one of the private dining rooms, the meeting was opened by Stephen D. Balliet of Appleton, and one of the directors of the state association, who stated the object of the meeting and set forth a history of dealers organizations in the state. He asked each dealer present to sign an application for membership and then suggested that permanent organization be effected. This suggestion was acted upon with the result that John Christoph, of the Twin City Fuel Co., Neenah, Wis., was elected permanent chairman and R. W. Getchow, Ideal Lumber and Fuel Co., Appleton, was elected permanent secretary.

Executive Secretary F. R. Carty was introduced and talked for a few minutes on the constitution and by-laws, as well as plans for visiting every dealer in the territory. A general discussion then ensued concerning dealers' troubles, after which it was decided that the next meeting should be held at the Sherman Hotel, Appleton, on Wednesday, March 28 at 6:30 p. m.

Those present were:

Stephen D. Balliet, Stephen D. Balliet Supply Co., Appleton.  
F. R. Carty, executive secretary, Oshkosh.  
H. E. Gorges, New London Produce Co., New London.  
P. R. Jaeger, Jaeger-Dawin Co., Menasha.  
Lester Johnson, Jos. Johnson Sons, Neenah.  
John Christoph, Twin City Fuel Co., Neenah.  
M. Alberty, Steve Alberty, Appleton.  
M. Barlow, Demboch & Barlow, New London.  
Chas. J. Pommer, Waupaca.  
Jos. J. Jansen, Kaukauna Lbr. & Mfg. Co., Kaukauna.  
Geo. H. Wilson, Wilson Lbr. & Fuel Co., Kaukauna.  
Peter Remm, Remm & Co., Kaukauna.  
J. H. Marston, Jr., Marston Bros. Co., Appleton.  
R. W. Getchow, Ideal Lumber & Coal Co., Appleton.  
Peter Olk, Peter Olk Elevator Co., Hortonville.  
Will Tate, Bear Creek.  
J. P. Thern, J. P. Thern Co., New London.  
Hans Ebbe, Waupaca.  
A. M. Mayo, New London.

Several sub-district meetings have been held during the past month. The dealers are receiving the proposition very enthusiastically, and it seems that all realize the benefit of organizing and that many troubles would be overcome by the proposed educational campaign which will be conducted by the association.

The executive secretary has established offices in Oshkosh and it is hoped that the dealers of the state will not hesitate to call upon him any time for any information which they desire.

The officers of the Wisconsin Builders' Supply Association are:

President, Fred Hurlbut, Fred Hurlbut Co., Green Bay, Wis.  
Secretary, Stephen D. Balliet, Stephen D. Balliet Supply Co., Appleton, Wis.  
Treasurer, Rufus C. Brown, Jr., Cook-Brown Lime Co., Oshkosh, Wis.  
Directors, W. J. Nuss, Secretary Pantzer Lumber

Co., Sheboygan, Wis.; Wm. Knauf, Knauf & Tesch, Chilton, Wis.

Executive secretary, F. R. Carty, Oshkosh, Wis.

## ADVISE DEALERS TO RESPECT DIFFERENTIAL.

To Masons' Material Dealers of New England.

Gentlemen: For several years past most of the dealers in masons' materials in New England, as well as those who do business in other sections of the country, have realized that they were not obtaining a sufficient profit in the handling of some of the heavy materials which constitute the major portion of their business, and, because of this fact, dealers' associations were formed for the purpose of taking up these matters with each other and with the manufacturers of the material, with the view to coming to some definite understanding which would afford better returns in connection with their business.

Representatives of the New England Builders' Supply Association have met from time to time within the past few years with the representatives of other associations, and also the manufacturers and as a result of these meetings the dealers are now accorded the advantage of a ten-cent differential in the sale of cement in carload lots, one dollar per ton in the sale of hard plaster and a reasonable margin of profit in many of the other lines which they handle in good-sized quantities.

It is a fact, nevertheless, that in granting these concessions, the manufacturers have been assured by the dealers' representatives, and have insisted for their own benefit at such times as they are making direct quotation to consumers, that the full amount of the differential which they have allowed would be observed by the dealer, and would be taken for his own profit without any division of same for the benefit of his customer.

During the past few days some of the bidding which is taking place in New England has indicated one of two things either that the dealer does not fully understand the position that he should occupy with reference to his competitor and also the manufacturer at such times as he is naming his price, or else he is satisfied to have the business revert to the former unsatisfactory condition, concerning which so much complaint was made by the dealers who believed that the standard of their business should be above that of a mere teaming business.

Because of the facts as related above, we have thought it best to address this letter to the dealers in masons' materials of New England, with the idea that when naming prices, they will consistently uphold all of the differentials which the manufacturers have accorded to them.

We also wish to advise them not to be misled by any statements of any overzealous salesman or manufacturer who endeavors to convince the dealer that it will be necessary for him to cut the price in naming his figure because of the fact that if he does not do so, that his competitor will.

If at any time any matters arise in your particular locality which do not seem satisfactory to you, whether or not such actions are the result of dealers or manufacturers' methods of doing business, the officers of the New England Builders' Supply Association will be very glad to be advised of same by you, and will at all times offer all advice and assistance which is within their power in order that better conditions of business may be had.

Unless dealers and manufacturers can be made to realize that business conducted by each of them is deserving of a fair profit commensurate with the energy and capital which they have invested in same, it is only a question of a short time when the dealers will find themselves in direct competition with the manufacturers for the majority of their carload business, with no protection whatever to enable them to make a profit.

We trust that you will assist the gentlemen who have represented the associations, and also those who have represented the manufacturers, and show by your future actions that you realize the importance of respecting the differentials which have been obtained for you.

NEW ENGLAND BUILDERS' SUPPLY ASSOCIATION.

Charles M. Kelly, President.

Frank H. Kingsley, Secretary.

Hoosier Gravel Co., Attica, Ind.; capital, \$50,000; to engage in the mining of sand and gravel; incorporators, R. E. Hanson, J. C. Hanson, S. C. Hanson.



## FEBRUARY BUILDING TAKES SLIGHT DROP.

There is a bright side to the statement. It is generally agreed that considerable construction work is being held up on account of the high prices of material and also on account of the difficulty of procuring early deliveries of steel and some other forms of material. This large latent volume of work will doubtless come into view with a change in the conditions noted. The detailed statement for February is as follows:

Big producers here, therefore, took the opportunity of stocking up their materials, so that they would be ready to meet the resumed demand at least, which is something they have not been quite able to do the last few months. Slight reduction in coal prices is noted the last few weeks and this has served to steady the markets for all materials, although this condition is somewhat offset by the fact that most other raw materials going into the manufacture of building products have advanced again slightly.

According to reliable information from various centers of the local territory, as well as the eastern section generally, activity is noted in all parts of the building field. Structural projects held up since last fall have recently come to life and new operations are developing daily. Architects' boards are covered with enough work to keep things moving well on past the summer months and early autumn. In the entire eastern section the improvement in building conditions takes the form of commercial work as a rule, both active and contemplated, but there is also plenty of residential projects in the various suburbs especially. Factories, warehouses and other construction of a manufacturing and business nature are taking the lead. There is much of this kind of work in immediate prospect and more is sure to follow as the season wears on. Suburban building is looking up with the opening of new rapid transit zones which have opened outlying portions of the city for residential and general community purposes. Due to lack of transportation facilities these outlying sections have been dormant, but 1917 will witness a lively effort to develop them to what they ought to be.

Newark, N. J., March 15.—The one big bugbear in business at present, as has been the case throughout the winter, is the extremely serious car shortage, says Tomkins Brothers, wholesale mason material dealers. It is really becoming a menace to the vital business interests of the country. The demand for goods of all kinds is greater than ever before, and the manufacturing element is in a splendid position to meet the demand, yet manufacturers and consumer cannot connect because of the country's wretched transportation facilities. There is little immediate prospect of relief from this situation. Thousands of new freight cars are being built and placed in operation, but the requirements are so great that the new equipment seems to make little impression. Freight embargoes are holding up various building materials to make way for shipment of foodstuffs and perishable goods. As a consequence manufacturers of lime, sewer pipe, hollow tile, fire brick, etc., can ship a very small percentage of the orders on their books. Although their storehouses are full of materials, they can ship only so fast as they are allotted cars by the railroads.

Stocks of building materials in the hands of many dealers are very low. Some dealers had the foresight or took the warnings which were sent out last fall that the present situation would exist, and ordered goods ahead, which they knew they would need. Other dealers who did not order for stock are now losing money on orders which they cannot fill.

Prices are still on the upward trend, and under the present peculiar conditions it is difficult to predict when the limit will be reached. During the past month there have been advances in lime, sewer pipe, flue lining, fire brick, face brick and common brick. Other materials, including metal lath and cement, show a tendency to advance, and increases in these materials may arrive very shortly.

Prospects are very bright for a good building material business this year. No matter which way our foreign relations turn, there is much necessary construction work which will have to go ahead.

Louisville, Ky., March 20.—Rumors to the effect that building operations are being handicapped to some extent by the high cost of all building materials, including builders' hardware, lumber and machinery, are said to be having some effect this spring, but the local supply houses are discounting the effect of high material prices and are of the opinion that 1917 will prove a very good year. While lumber prices have advanced, the prices of such commodities as brick, cement, stone, lime, etc., have shown very little change and this is considered one good argument in favor of fireproof materials. Several good building contracts have been placed during the past two weeks and in April outdoor work will probably go ahead at full speed.

Cincinnati, O., March 20.—Building work has been almost at a standstill of late, due principally to extremely bad weather, which this year has lasted unusually long. Snow, rain and low temperatures have prevailed so long, with little interruption, and builders have had little encouragement to start work. Indications are that spring is finally about to get under way. The lateness of the season has merely resulted in piling up a considerable amount of work, which is waiting to be started. It is fair to assume, therefore, that things are going to be very lively with the material dealers when they get started.

[illegible]

Cleveland, Ohio, March 20.—Failure to reach an agreement by the Building Trades Employers' Association and

## NEW ENGLAND MARKET BRISK.

Boston, Mass., March 20.—With the prospective railroad strike averted at the eleventh hour, retailers of building materials in this district are happy. Dealers in all commodities settled down to a siege of no deliveries when current events piled up last week. The local railroads refused to receive freight Saturday and cleared their freight houses in the expectancy of a strike. Many embargoes have been lifted and all have resumed the preparations for a spring haulage rush now. Stocks are short and if the good luck holds much ordered material will be making its way into New England immediately and the spring building rush will be on in earnest. Many figurings and specifications are reported, but the many uncertainties up to the present had a very decidedly restrictive effect on contract closings.

Building prospects bettered immediately upon the turn in the railroad situation. Cars are more plentiful than they have been in months, and New England will come back with a surprising rebound in a very short time if the railroad negotiations hold permanently.

Contracts awarded in New England to the middle of March, according to the statistics of the F. W. Dodge Co., amount to \$29,235,000, compared to \$32,153,000 for the corresponding period of 1916.

Builders and building material dealers in Massachusetts continue to take a prominent part in preparedness measures. They are active in the home guard movement, and provide district headquarters in all the large cities for the committee on public safety. They look out especially for labor supply, the provision of construction materials and machinery, and especially with arrangements for motor truck haulage. This is quite a feature of recent activity in the inland as well as the coast cities.

## RETAILERS AWAIT SPRING OPENING.

Pittsburgh, Pa., March 20.—Retailers will welcome some fine weather to enable them to fill contractors' orders. Roads and unpaved streets have been in such condition lately as to make deliveries, especially by truck, almost impossible. Contractors are beginning to get very busy on outside work and it is only a question now of getting materials out to them. Most builders' supply dealers have comparatively small stocks in their yards, and they find it hard to replenish these because of the car shortage. Prices are showing a decided advance. It is expected by May 1 that higher quotations will be made on at least a half dozen lots of builders' supplies. Lumber shows a decided tendency to move upward. There is every evidence of a big house building movement this spring. The fact that so many manufacturing and industrial manufacturers are absolutely in need of houses for their employees and have been forced to go ahead with the building of from fifty to 500 houses each is going to make a big demand for builders' supplies in many of the outlying industrial towns of the Pittsburgh district.

## RUMORS AND EMBARGOES HURT BUFFALO.

Buffalo, N. Y., March 19.—Ominous reports of a nationwide railway strike stifled for a few days the hopes of building supply dealers and contractors that construction work would begin with a tremendous rush in Buffalo early this spring. It is said that Buffalo now has only a week's supply of coal for her industrial plants and a two-day supply for home and lighting purposes. The railroads here have placed embargoes on various shipments, excluding perishable goods, foodstuffs, etc. The movement of cement, lime, brick, sand, etc., will be affected by the embargoes. War and rumors of war and industrial tie-ups have naturally surrounded with uncertainty the bright prospects for spring building. The possible outcome of the European situation may upset building plans here for a time.

"No commercial buildings, no hotels and no apartment houses will be erected in Buffalo this year," said one man conversant with the local building situation. This sweeping negative statement may be somewhat strong and probably should be modified by exceptions.

However, the informant's remark throws a pretty accurate light on the situation. The high cost of materials will put a damper on this kind of building. No records will be broken in the number of homes erected in 1917 unless the real estate men succeed in advancing rents.

If the railway situation is adjusted, there ought to be plenty of factory building this spring. Many local plants have developed by leaps and bounds in the past two years and will need numerous additions. The Pullman Co. and the Lehigh Valley Railroad Co. have let contracts for various improvements. The New York Central is anxious to begin work on its million dollar station in this city. Some slight changes have been made in the original plans. Final approval of the plans by the Buffalo terminal commission in a few days will probably be followed by actual work on the station.

Lump lime in Buffalo is now bringing \$1.55 a barrel. Cement sells at \$2.50 a barrel delivered on the job and \$2.21 at car. There is a light demand for building brick. The common brick continues to bring an advanced price.

## SLUMP IN MILWAUKEE BUILDING PERMITS.

Milwaukee, Wis., March 20.—The building permits of Milwaukee, Wis., aggregated only eighty-two for the month of February, 1917, as compared with 174 in the second month of the year before. Week by week comparisons show a definite falling off in the number of building operations. There is not so great a discrepancy in the expenditure for building purposes, however, as is indicated by \$783,844 expended in February, 1917, and \$823,178

in February of the year before, when it is considered that the number of permits in the latter period more than doubled that of the former.

The labor situation becomes more stringent as spring and the concomitant additional work advances.

"Day laborers are now receiving as high as four dollars a day for nine hours' work, and the city ordinances permits the paying of only thirty cents an hour as a minimum amount," said Frank Blodgett, superintendent of the street repair work, department of public works, recently remarking as to the prospects of spring street repair work.

## SOUTHERN BUILDING PROSPECTS BRIGHT.

Memphis, Tenn., March 20.—Material firms are active as weather conditions, labor agitation in other lines and war clouds will permit. There is a normal good trade with considerable work in prospect here and at other Southern centers. Talk recurs of the auditorium project, the city market, several subways and a considerable amount of new residence and remodeling work in business and residential structures. The American Tobacco Co. is equipping a big factory building on South Front and Talbot streets to be occupied in a few weeks. Some concrete work figures in this. Also on the Turley building on Court street, the Van Vleet structure on South Second, the old Specht property on Madison, and numerous suburban places.

J. C. Lovelace, of John A. Denie's Sons Co., seen at their office, 82 South Front street, said that normal business conditions locally for the spring were satisfactory and materials firm.

Geo. W. Person and Co., realty people, are to erect several stucco and bungalow structures. A. B. Lanning is the contractor.

In the downtown section new quarters for the DeSoto station for the post office substation is one of the jobs of the spring.

The piling work for the Crittenden county viaduct approach to the J. T. Harahan bridge has been under construction for some time by Ball and Peters. The wagon way will be a great factor in this bridge. While the railroads have been using it for some months, it will be formally opened and celebrated with a great pageant in Memphis, May 22, when the state will observe a holiday and a very notable celebration is anticipated.

The bridge of concrete planned for the Monroe avenue tracks of the Southern railroad by J. H. Weatherford, city engineer, and the engineers of the Southern contemplate a bridge 66' wide of reinforced concrete with 13' sidewalks on each side.

J. G. Goodman, well known commercial traveler, is now with the material firm, Crump Lime and Cement Co. of Memphis.

A. J. Cook and Co., Decatur street, and L. & N. railroad are furnishing the cement and material on some residences in a new subdivision here and on a couple of business structures downtown. Mr. Fraser says that spring prospects, with better weather conditions, look bright.

## MEMPHIS FIRM REORGANIZED.

Memphis, Tenn., March 20.—An important change in material circles of Memphis is indicated in the application to change the name of the Tri-State Builders' Supply Co. filed in county register's office. The concern will be re-incorporated as the Moss-DeVoy Lime and Cement Co. The incorporators are L. J. Moss, Clarence DeVoy, Clyde N. White, E. P. Larham and S. H. Fraser. Mr. Moss' company has been one of the prominent firms in Memphis for several years and the entrance into the new organization of Clarence DeVoy, formerly with the Union Sand and Material Co., is a matter of profound interest in the trade. All the gentlemen are prominent business men and the yard and warehouse facilities will be of a modern order.

A. J. Cook and Co., building material people on Decatur street, report good spring trade on Kosmos cement and Texas plaster. They have also enjoyed a nice trade in sewer pipe, handling a product made by the Chattanooga Sewer Pipe Co. They have in the last day or two been awarded the contract by the James Alexander Construction Co. for all the cement to be used in the Boyd building, a business house to stand on the site of Memphis pioneer confectionery of Joseph Specht.

A. J. Cook and Co. has also been awarded the contract for the cement to be used in E. C. Cook's Strathmore subdivision to be opened up in the eastern part of the city. This includes residence and paving features of a modern city subdivision. Mr. Fraser states that to take care of the 1917 city trade they have installed two auto delivery trucks of one and two tons capacity respectively.

D. M. Crawford, of the D. M. Crawford Co., who returned from a trip to Nashville and Clarksville, reports that he secured the contract to rebuild the main building of the Clarksville (Tenn.) high school. The building will cost about \$25,000 and will be opened next September. C. K. Colley, of Nashville, is the architect. While at Nashville, Mr. Crawford attended the annual convention of the Tennessee Association of Builders' Exchange and was re-elected vice president of same. I. N. Chambers, of Memphis, was re-elected a member of the board of control.

## ACTIVITY SHOWN IN PACIFIC NORTHWEST.

Seattle, Wash., March 15.—Conditions in the building line in the Pacific Northwest have been more active since the first of the year than is usual for this season. Building permits in Seattle, while but 6 per cent greater in February than in the same month last year, are increasing steadily, and manufacturers, retailers and contractors look forward with confidence to the best year the city has had. Other cities feel the same forward wave, Tacoma reporting an increase of 21 per cent over a year ago, and Spokane and Portland also show greater totals. The one factor that is disturbing to any extent is the car shortage, all building activities depending very largely on incoming shipments of cement, steel, etc.

Among the large contracts that are now being completed in Seattle are an eight-story reinforced concrete department store for Frederick & Nelson, covering a block in area, and costing \$750,000. The American Can Co.'s new factory, a five-story concrete structure, is now being roofed, while the company's dock is already completed. Seven new school buildings are under way, contracts totaling \$855,000. Seven apartment houses, costing over \$350,000, are being built, while work is about to be commenced on a fourteen-story addition to the leading hotel to cost \$150,000. The largest industrial building now being erected in the Northwest is a beet sugar refinery, being built at North Yakima, and which will cost \$1,000,000. A theatre in Tacoma, now under way at an expense of \$200,000, leads the activities in that city. A site has been purchased, and work will start immediately, on the largest paper mill on the Coast, to be built at Port Angeles.

The feature that is attracting the greatest attention here is shipbuilding. The magnitude of this industry is surprising, considering that twelve months ago shipyards were comparatively few. The first of March finds Seattle alone possessing bona fide contracts for the construction of forty-three steel and six wooden merchant vessels, and five steel warships, at prices totaling \$64,000,000. These ships placed end to end would extend four miles, and will carry 378,000 tons. Payrolls at the Seattle shipyards approximate \$550,000 a month, there being about 8,000 men employed.

The Pacific Northwest is dependent to a very large extent on the output of its lumber mills for its prosperity. Since September last, conditions in this industry have been abnormal, and shipments for February were the smallest in ten years, being less than half of normal, while orders on file are four times as great as they were a year ago, the mills having a total of 17,000 cars booked for shipment. Many plants have been forced to close down on account of heavy accumulated yard stocks, most of which are covered by orders. Under these conditions, prices are very firm, and lumbermen believe this year will be the best for many years, provided the car shortage eases up to any extent.

## BUILDING SITUATION ON THE COAST.

San Francisco, Cal., March 17.—The building situation on the coast has taken a decided turn in several cities, and, while permits granted during the month of February in San Francisco, Los Angeles and Oakland are ahead of those granted in both 1915 and 1916, in no city on the coast was the January, 1917, record broken. San Diego and Portland show a decrease over 1916, although San Diego's showing the past month is better than for the same month 1915. San Diego suffered a fall of more than one half of the total for January this year. San Francisco shows a gain over both February, 1915 and 1916, although the February, 1917, result was \$457,252 lower than January of this year. Los Angeles shows a substantial gain over February, 1916, although the decrease over January of this year has been more than \$3,000,000. Oakland shows a slight decrease over 1916 and is also slightly under the total for January. In Portland the February permits were less than for two years previous.

It is difficult to assign the exact reason for this apparent fall in building activity, although the unsettled condition of our relations with the warring countries has undoubtedly had its effect.

In San Francisco the total number of building contracts entered into during February amount to \$1,537,939 with brick and concrete buildings leading in the anticipated construction work totaling \$533,425. Municipal, state and government work totals \$55,827, the remainder being frame buildings and alterations. It is estimated that the building operations in San Francisco since the fire are not less than \$375,500,000, not including the building operations carried on by the government, the Panama-Pacific International Exposition Co. or the municipal government prior to Dec. 31, 1912.

Many large residences are scheduled to be erected in the spring, a large number being of stucco with tile roofs or asbestos shingles.

The Terminal Co-operative Shipbuilding and Dry Dock Co. of San Francisco has applied to the city of Oakland for a twenty-five-year lease on a large amount of the city's share of the western water front. Reinforced concrete, brick and steel will be used in the extensive ship yards, floating docks, foundry and machine shops to be erected.

## LITTLE ROCK RETAILERS BUSY.

Little Rock, Ark., March 20.—The Superior Builders' Supply Co. has recently taken over the building material business of the Salco Sand and Gravel Co. The firm is located at 319 East Markham street. M. A. Cohn is manager. The company is distributor here for the Burke Brick Co., face brick; New Jersey Terra Cotta Co.; Algonite Stone Manufacturing Co., and H. W. Johns-Manville, asbestos roofing.

The Darragh Co. is enjoying a good spring trade on building materials.

G. A. Lelper & Co. have been furnishing the cement for the A. O. U. W. building on Center street. The brick used in this structure is from the Hydraulic Press Brick Co.

## BIRMINGHAM HOLDING ITS OWN.

Birmingham, Ala., March 17.—Building operations in Birmingham in February entailed practically the same expenditure as in February of last year, although twenty-two less permits were issued, according to the report of City Engineer Kendrick. Three hundred permits for operations amounting to \$147,287 were issued during February, 1917, while in February, 1916, 322 permits for expenditures of \$150,969 were issued.



# CONCRETE

## World's Largest Grain Elevator Under Construction

What will be the largest grain elevator in the world is nearing completion in Chicago. When finished, the various buildings of this gigantic undertaking will have a capacity of 10,000,000 bushels of grain. This grain elevator is being constructed by the Chicago & Northwestern railway and will be operated by the Armour Grain Co., of Chicago. It was designed by John S. Metcalf Co., Ltd., of Chicago, and is being erected by the Witherspoon-Englar Co., and Grant Smith and Co., of Chicago.

Wherever possible, concrete has been used. All of the bins are of reinforced concrete. These are all finished, and the structural steel for the track shed, work-house cupola, and the river house cupola is being rapidly erected. The elevating, conveying and transmission machinery, which was manufactured by the Webster Manufacturing Co., of Tiffin, Ohio, is now being installed.

The plant consists of a working house, river house, storage tanks, track shed, drier equipment, bleacher outfit, marine tower and galleries. The work was started in March, 1916, and would have been completed before this but for the delay in receiving the structural steel.

The working house, like the greater part of the plant, is of reinforced concrete and occupies a ground space of 285' by 77', being 192' high. It is equipped with six receiving legs, six shipping legs, eight cleaner legs, five clipper legs, four screening leg, six dryer legs, and three bleacher legs. The first story is 25' high and contains the cleaning machinery and scales. Above the first floor are ninety-five reinforced-concrete storage bins, each 14' 5" in diameter and 74' deep. They afford a capacity of 931,000 bushels.

Surmounting the bins is a cupola of structural steel and reinforced concrete floor, enclosed with wire mesh and plastered with cement.

A special feature of the elevator is the receiving track shed, which joins the working house on the west and is built of structural steel, being 96' 6" wide and 285' in length. The track shed spans five tracks and encloses twenty-four receiving sinks, so that twenty-four cars may be unloaded at the same

time. The drier building, 28' wide, 180' long and 99' high, is of structural steel and is erected over this track shed.

East of the working house is situated a storage house consisting of 104 reinforced-concrete tanks, each 22' 6" inside diameter and 104' high, affording a capacity of 4,383,000 bushels. Future storage is provided for 3,364,000 bushels.

The river house is east of the storage house and parallel with the Calumet river. It contains six shipping legs. The first story is 18' 9" high, of reinforced concrete, surmounted by twenty-four reinforced-concrete storage bins each 22' 6" inside diameter and 95' high, with a total capacity of 778,000 bushels. The cupola of the river house contains scales, garners, etc., and is 45'x270' and 77' high, built of structural steel with reinforced concrete floors and roof, plastered with cement plaster.

The marine tower, which unloads boats to the river house, is 28'x32'6" and 145' high. It is located at the south end of the river house and built of structural steel covered with wire mesh. At the north end of the river house and parallel with the river is a shipping gallery 500' long for shipping grain from the river house. All the machinery will be driven by motors supplied by the General Electric Co.

### NEW CONCRETE PRODUCTS VENTURES.

Northern Steel & Concrete Co., Freeport, Ill., has increased its capital stock from \$5,000 to \$10,000.

Cement Products Co., Chicago, Ill.; capital, \$25,000; incorporators, Joseph R. Seney, Albert H. Schrader and Ridgeway B. Lippincott.

Texas Everlasting Post Co., Fort Worth, Tex.; capital, \$20,000; incorporators, L. M. Barkley, Oscar Menefee, George Mulkey and others.

Pleas Concrete Construction Co., Chicago, Ill., has changed its name to the Pleas Construction Co.

### CONCRETE REPLACES STEEL.

A move of railroads to substitute, wherever possible, concrete for steel in bridge construction was made recently in Kansas City, by a group of roads

which acquired thirteen acres of land, on which they will establish a modern plant for casting concrete units.

This move is the effort of the railroads to meet the demand for quick shipment on bridge material and to evade the tremendously high prices of steel.

As one official put it, "It means the replacement of every pound of steel for which a concrete pier or stringer may be used."

### CONCRETE NEWS OF THE CONCRETE FIELD.

A few years ago country highways were merely a possible outlet for cement. Last month Vermillion County, Ill., ordered 190,000 barrels of cement for concrete road construction now in progress.

The Department of Health and Sanitation of Philadelphia has appropriated \$20,000 which will be spent for the construction of concrete alleys.

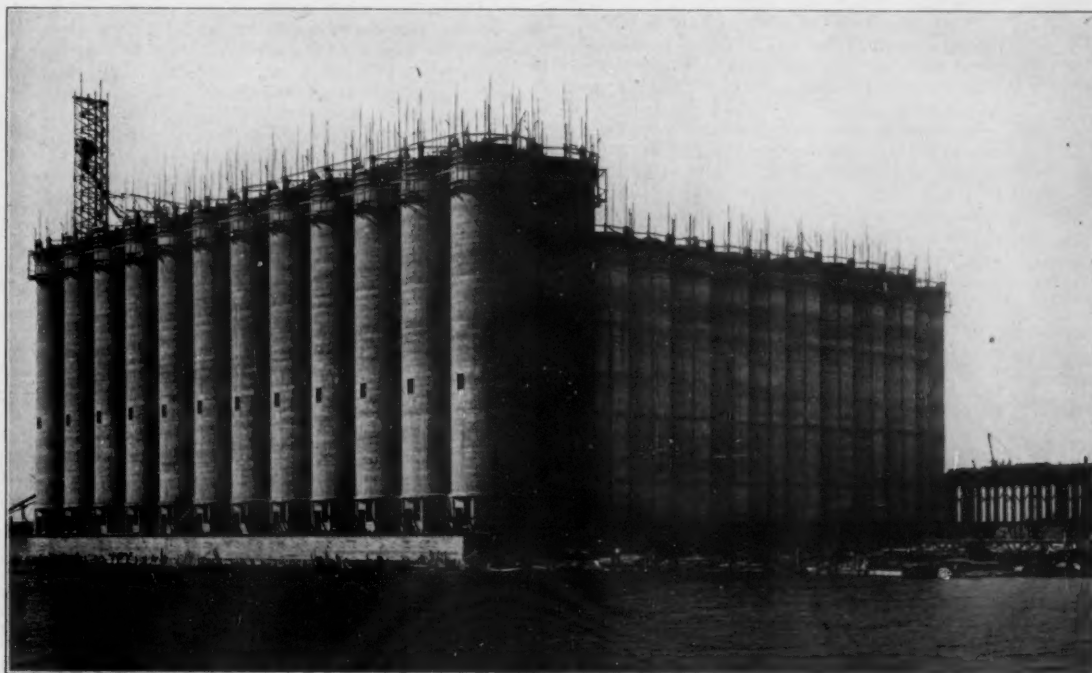
Because a farm needed tiling, Mukwonago, Wis., got a tile and concrete products company. Although it sounds like the story of Aladdin rubbing the wonderful lamp, the whole thing is a reality. Several years ago, G. B. Van Norman, a Chicago commission merchant, bought what was known as the Perkins farm about a mile and a half south of the village of Mukwonago (Waukesha county). Being of an enterprising nature, he could not tolerate the waste of land lying as swamp on his new purchase. Rather than pay the cost of transportation and neglect the possibilities of developing home industry by importing clay conduits, he erected a factory and gave employment to ten or twelve people by manufacturing for his own need. A new building to be constructed of reinforced concrete is soon to be the material evidence of what the private industry of Mr. Van Norman has developed to be. The plans call for ten curing rooms, along with pattern, boiler, engine, cement, coal, and gravel rooms. The enlarged industry will put into circulation about one thousand dollars a month. Mukwonago residents are considering various plans whereby they may aid in the development of the new industry, and because the personal attention of Mr. Van Norman is required by his business in Chicago, he wishes to co-operate with the citizens of Mukwonago in managing the Mukwonago Tile and Concrete Products Co.

The 1916 report of the Massachusetts highway commission mentions concrete roads very favorably. In substance, reference is to the effect that the Massachusetts commission has had its attention attracted to the advantages of concrete roads because of the increased mileage and satisfactory service of this type of construction in New York, Connecticut and various other places.

Veterans of the Confederate Army will erect a concrete obelisk as a monument to the memory of Jefferson Davis, at his birthplace in Kentucky. When concrete construction was at first suggested it was strongly opposed, but through the efforts of the chief engineer of the Fireproof Construction Bureau of the Portland Cement Association, who checked the plans of the proposed design, it has been decided to use concrete.

Three counties in Washington contemplate bond issues aggregating \$2,000,000. Petitions which are being circulated in this connection call for a system of concrete roads.

After an analysis of the annual report of fire losses in the United States for 1915, issued by Fire Underwriters, the Fire Construction Bureau of the Actuarial Bureau of the National Board of the Portland Cement Association reports that 21.3 per cent of the fires may be considered as preventable; 38.7 per cent are probably preventable; and the causes of 40.7 per cent of all fires are not known. The total losses for 1915 amounted to \$153,231,876, which may be divided into a little over \$61,000,000 loss on buildings and approximately \$92,000,000 on contents. Two hundred and thirty-two companies reported the losses and the figures above given represent insurance losses only. The fire losses were approximately \$200,000,000, of which about \$153,000,000 were covered by insurance.



PROGRESS PHOTOGRAPH OF CHICAGO & NORTHWESTERN RAILWAY CO.'S CALUMET TERMINAL ELEVATOR AT SOUTH CHICAGO, SHOWING COMPLETION OF CONCRETE WORK ON 104 CYLINDRICAL TANKS OF STORAGE HOUSE AND TWENTY-FOUR TANKS OF RIVER HOUSE, TOGETHER WITH PORTION OF COMPLETED REINFORCED CONCRETE DOCK—AT EXTREME RIGHT IS SHOWN FIRST STORY OF WORK HOUSE.

# CEMENT

## CANADA CEMENT PROFITS INCREASED BY 36 PER CENT.

Earnings of the Canada Cement Co., Limited, reached a new high level in 1916, the statement now going out to shareholders reporting a net profit of \$2,218,848, an increase of \$476,835, or 36 per cent over 1915, the best twelve months previously reported.

After taking care of bond interest and preference stock dividend, there remained a balance of \$1,040,086, equivalent to 7.7 per cent on the \$13,500,000 ordinary stock outstanding. There was thus a fair margin over dividend requirements on the 6 per cent per annum basis instituted during the year, and one element of doubt and uncertainty which recurred in the stock market controversy of the year is eliminated. As a matter of fact, although the stock was placed on a 6 per cent basis during the year, the total distribution out of 1916 profits was only 4½ per cent, the first dividend of 3 per cent, declared in January, being charged against the earnings of 1915. While three ordinary stock declarations, made during 1916, totalled 7½ per cent, only two, the midsummer 3 per cent and the quarterly 1½, in the autumn, came out of that year's profits. After charging up the 4½ per cent to 1916 profits the balance remaining to carry forward was \$432,585, or slightly more than 3 per cent on the ordinary shares.

### The Annual Statement.

Comparisons of profit and loss figures for three years follow:

	1916.	1915.	1914.
Net earnings.....	\$2,218,848	\$1,742,013	\$1,517,059
Bond interest.....	443,762	455,050	459,068
Balance .....	\$1,775,086	\$1,286,963	\$1,057,990
Preferred dividend....	735,000	735,000	735,000
Balance .....	\$1,040,086	\$ 551,963	\$ 322,990
Common dividend....	607,500	405,000	.....
Surplus .....	\$ 432,585	\$ 46,963	\$ 322,090
Previous surplus....	1,660,232	1,513,269	1,190,279
Total surplus.....	\$2,092,818	\$1,650,232	\$1,513,269
ASSETS.			
	1916.	1915.	1914.
Plant .....	\$31,863,273	\$31,467,390	\$31,579,447
Investments .....	35,234	35,234	35,234
Investures .....	3,788,484	2,400,843	3,310,395
Accounts received....	878,050	247,508	389,617
Bills received.....	12,500	35,306	63,949
Deposits .....	54,994	64,314	20,475
Cash .....	125,892	610,459	7,648
Deferred charges....	25,533	40,364	40,747
Total .....	\$36,785,061	\$34,901,421	\$35,447,514
LIABILITIES.			
Preferred stock.....	\$10,500,000	\$10,500,000	\$10,500,000
Common stock.....	13,500,000	13,500,000	13,500,000
Bonds .....	7,257,613	7,448,679	7,638,706
Bills payable.....	950,000	.....	825,015
Accounts payable....	1,229,516	482,028	737,192
Interest accrued....	108,804	111,730	114,580
Preferred dividend....	183,750	183,750	183,750
Common dividend....	202,500	.....	.....
Reserves .....	760,000	610,000	435,000
Surplus .....	2,092,818	*2,065,232	1,513,269
Total .....	\$36,785,061	\$34,901,421	\$35,447,514

\*Prior to deducting common stock dividend of 3 per cent declared out of 1915 earnings after close of the year.

## CANADIAN FIRM MANUFACTURING POTASH.

What promises to be a new and important industry for Canada has just been discovered in the production of potash as a by-product of Canadian feldspar. The potash has been made in quantities as large as sixteen tons daily from the plant of the National Portland Cement Co., Durham, Ont., and the new process evolved which makes the manufacture of potash possible is the result of three years' diligent toil and expenditure of thousands of dollars by Allan Grauel, a Pennsylvania Dutchman, who went to Canada from the States in 1914. The problem of supplying this very necessary commodity arose prin-

cipally through the stoppage of German supplies when the war commenced. Prior to the war potash could be bought on this side of the Atlantic at prices from \$36 to \$50 per ton, and the large bulk of the world's supply came from Germany. As soon as the war started the prices advanced rapidly, until today muriates are quoted at \$600 per ton and caustic potash is as high as 85 cents per pound.

About ninety tons a day are now being produced in the States to try to meet the demands which were as high as 1,400 tons daily in pre-war times.

Not until about a month ago did Allan Grauel satisfy himself that potash could be produced in paying quantities from feldspar. Up till a year ago the plant at Durham had been making cement from limestone, and a 2 per cent proportion of potash escaped up the chimneys in the process. Ultimately feldspar rock was added to the limestone as the raw material for cement, and Grauel finally evolved his process for collecting the liberated potash. The process is now secured by Canadian patents.

Both muriates and the caustic product are being produced, and while the market standard of the former is fixed at 80 per cent to the trade, it is possible, so the company claims, to produce an article almost totally pure.

## CANADIAN CEMENT PRODUCTION.

The total quantity of Portland cement made in Canada in 1916 was 4,753,034 barrels of 350 pounds each, as compared with 5,153,767 barrels in 1915, a decrease of 400,733 barrels, or about 7.8 per cent.

The total quantity of Canadian Portland cement sold or used during 1916 was 5,359,050 barrels, valued at \$6,529,861 or an average of \$1.218 per barrel, as compared with 5,681,032 barrels or used in 1915, valued at \$6,977,024, or an average of \$1.228, showing a decrease of 321,982 barrels, or about 5.7 per cent.

The total imports of cement in 1916 were 72,087 cwt., equivalent to 20,595 barrels of 350 pounds each, valued at \$31,621, or an average of \$1.54 per barrel, as compared with imports of 28,190 barrels, valued at \$40,426, or an average of \$1.43 per barrel in 1915.

The total consumption of cement, therefore, neglecting a small export was 5,379,645 barrels, as compared with a consumption of 5,709,222 barrels in 1915, showing a decrease of 329,577 barrels, or about 5.8 per cent.

The average price per barrel at the works in 1916 was \$1.218 as compared with \$1.228 in 1915, \$1.28 in 1914, \$1.27 in 1913, \$1.28 in 1912 and \$1.34 during 1911 and 1910.

The imports of cement in 1916 included 72,083 cwt., valued at \$31,616 from the United States, and 4 cwt., valued at \$5 from Great Britain.

## CEMENT DEMAND CONTINUES FIRM.

Cleveland, Ohio, March 20.—Demand for cement, while as good as ever, and better in the last fortnight with the milder weather for pouring, is now threatened by the possibility of suspension of building operations on all large work, due to the break between the employers' association and the building trades council. The continued high cost of production, only modified by a decline in coal prices, makes for a continued firm tone in all descriptions of cement, with the possibility of another advance with the advent of real spring weather.

## EXPECT CEMENT WILL ADVANCE AGAIN.

New York, March 20.—The cement market is strong and healthy with demand brisk and prices holding strong and those well informed declare that there is little doubt but that the price will be advanced again at an early date. Domestic Portland spot wholesale is 500-barrel lots and over alongside dock New York is quoted \$1.97 to \$2.07 with the usual rebate of ten cents for bags returned.

## REASONS FOR CEMENT PRICE ADVANCES.

In connection with the advance in the prices of building materials during the last two years, information reaches the public occasionally which indicates that the manufacturer in dealing with labor and raw materials has the vexing problem of high prices before him quite as well as the consumer.

The cement manufacturer today is charging for cement from 20 to 50 cents per barrel more than three or four years ago. One manufacturer of cement in discussing his difficulties said:

"As compared with 1915, cost results for January, 1917, show that coal for power and burning was twenty-five cents higher per barrel for finished cement. In other words, the amount we are obliged to pay for coal has increased the cost of manufacturing a barrel of cement twenty-five cents as compared with the early part of 1915. We are paying 35 per cent higher wages, which has increased the cost of manufacturing cement several cents per barrel. All repair and renewal material has increased in cost by percentages varying from 30 per cent to 250 per cent. The increase in the cost of insurance due to the general adoption of compensation insurance and the increase in taxes have also added to our cost of doing business one cent per barrel. We have been compelled to pay higher salaries. Our operating costs are considerably higher than formerly by reason of frequent interruptions due to shortage of cars and delays in transportation. All of these factors and the general increase in the cost of all items entering into the problem of manufacturing cement have vexed the cement makers and have compelled them to charge more for their product, a situation which is not at all relished by them because of the fact that one of their most prominent arguments for the use of concrete is not only its economy and permanence, but its relative low cost as compared with other materials which for many purposes are rivals of concrete."

## WITHDRAW PRICES ON EXPORT BUSINESS.

During the week ending March 17 some of the cement manufacturers withdrew all prices on cement for export. They set forth the following four reasons for this move: 1, scarcity of labor; 2, car shortage; 3, growing demand for domestic consumption; 4, small supply on hand at the mills. This step evidently has been made with the object of taking better care of home trade. Exactly parallel conditions prevailed at the sewer pipe factories before the last advance, and this would seem to indicate that another rise in cement is on the way. Steel reinforcing materials are in great demand and this means that cement is going to be needed. The cement mills are now selling all they can produce and shipments have been prompt. However, they are now beginning to feel the car shortage and dealers would do well to order a little ahead of requirements wherever it is possible to do so.

## BUFFALO PRICES MAY GO HIGHER.

Buffalo, N. Y., March 20.—If the railroad embargoes continue, the price of cement in Buffalo is likely to advance. The present price is \$2.50 a barrel delivered on the job and \$2.21 at the car.

A new reinforced-concrete engine house at East Buffalo, an addition to the company's engine house at Tift Farm, this city, and new machine shops, power house and oil houses are improvements which the Lehigh Valley railroad will begin at once. The Westinghouse-Church-Kerr Co. of New York has the contracts.

The Arnold Co. of Chicago will build a reinforced-concrete shop for the Pullman Co., at East Buffalo.

Considerable cement will be used in North Tonawanda.



# LIME

## Waste Marble Converted into Hydrated Lime

Marble was first discovered in West Rutland, Vermont, in 1835. An attempt was made at that time to burn it and make lime. The efforts in that direction were unsuccessful and the lime industry gave way to quarrying, which consisted of drilling and blasting, a method which was followed until the Wardwell Channeling machine was invented in 1863. That machine consisted of five chisels raised and dropped by hand, the force being sufficient to channel through the marble.

At these quarries is a large accumulation of blocks and irregular pieces of marble unsuitable for monumental or building material. There are in one pile eight thousand pieces of marble heretofore looked upon as waste, or of little value.

Recently, however, there has been erected in West Rutland a modern plant for the purpose of manufacturing from marble blocks, or waste, quick lime, hydrated lime, and two grades of agricultural lime.

The processes of manufacture are as follows:

Blocks of marble weighing several tons are taken from platform cars and placed in a jaw crusher located in the end of this modern mill, where they are broken into pieces about 7" in thickness. These small pieces are then placed in a gyrator crusher from which they enter a roll crusher. After these crushing processes, the material is placed in the cool end of a slowly revolving kiln, 120' long and 8' in diameter, in which it is subjected to a temperature of 1000 degrees C. This temperature expels the carbonic acid, leaving oxide of lime. As the material leaves the rotary kiln by gravity, it passes to a revolving cylinder 5' in diameter and 50' long, located under the rotary kiln, where it is cooled, delivered to an elevator, screened, and placed in large tanks. In this condition it is known as quick lime, similar to the lump form of quick lime, but in powdered form which is more readily mixed with other substances and possesses better keeping qualities than quick lime in lump form. From the tanks it goes through an elevator and a series of cylinders where it is mixed with a quantity of water. The

material comes from the cylinders in the form of white flocculent powder and is passed through air separators for the purpose of eliminating any coarse particles. The fine white material is passed by means of a current of air into a bin from which it is drawn out and placed in bags, the product having gone through the Kritzer hydrator and become hydrated lime. For agricultural purposes or for fertilizer purposes, the crushed limestone or marble is



ROTARY KILN 120' LONG—PRODUCER GAS ENTERS AT LEFT END; MARBLE ENTERS AT EXTREME RIGHT.

delivered by elevators to a pulverizing mill and reduced to a fine powder, the degree of fineness depending upon the process used; this product being known as crushed limestone. The tailings resulting from this process are used for agricultural purposes to better advantage than the crushed limestone, as they contain a small proportion of free lime.

The equipment for pulverizing marble for agricultural purposes consists of a 33" Fuller Lehigh pulverizer with its accessories.

The building for the storage of hydrated lime in

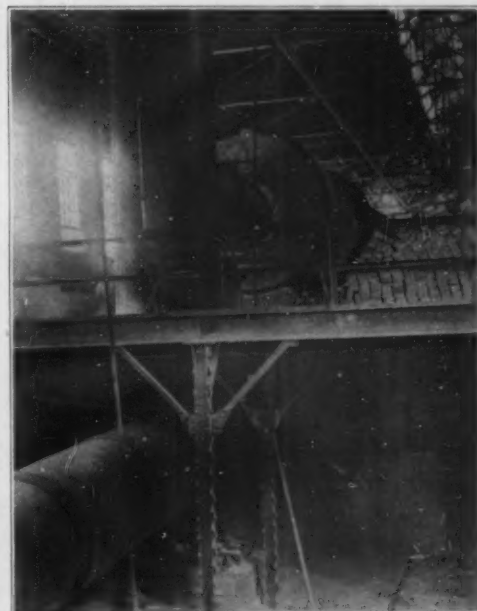
bags has a capacity of two thousand tons. The buildings are made of steel with corrugated iron roof and sides. Each machine throughout the plant is driven with individual motors, the power being furnished by hydro-electric stations. The heat is supplied to the rotary kiln by means of producer gas manufactured in an adjoining building.

A large quantity of marble, before the introduction of the rotary kiln, could not be successfully converted into lime by heat because the mass of hot marble, when falling in a vertical kiln would stop the cracks between the stones, and interfere with the proper draught in the kilns. This condition is overcome by the use of the rotary kiln.

The plant in West Rutland is said to be the most modern rotary kiln hydrated lime producer in existence. It was designed and constructed by the Fuller Engineering Co., of Allentown, Pa., and is owned and operated by the Vermont Marble Co., whose home office is Proctor, Vt.

### KELLEY ISLAND-OHIO & WESTERN MERGE.

The merger of two of the biggest lime producing concerns in the northern Ohio district, which will give to one firm the opportunity of producing close

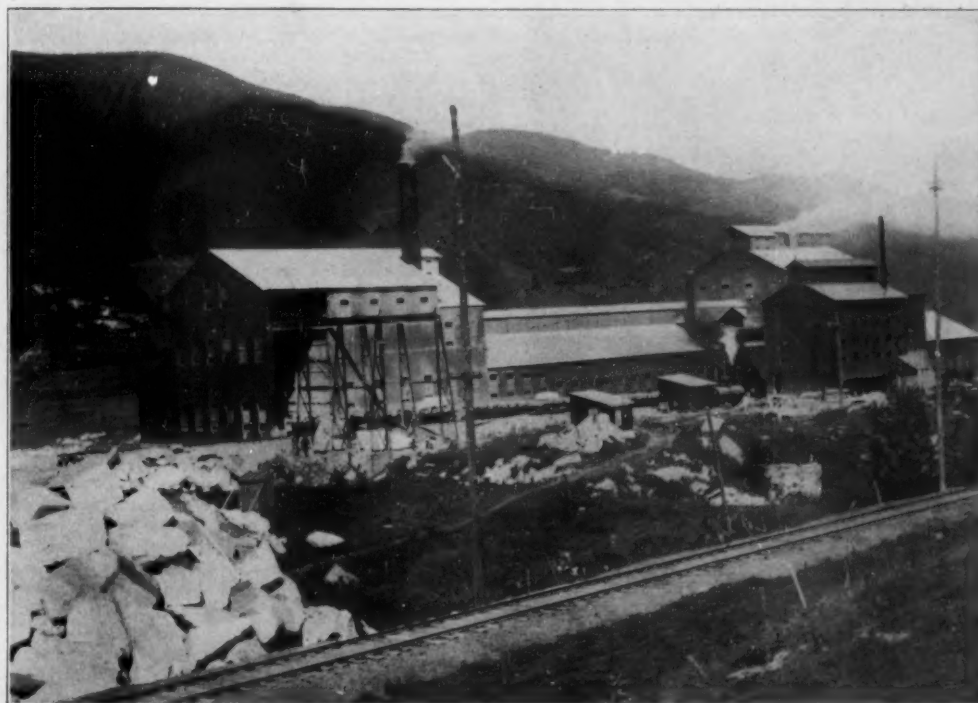


TOP OF PICTURE SHOWS WHERE GAS ENTERS ROTARY KILN BY UPRIGHT FLUE—LOWER PART OF VIEW SHOWS REVOLVING COOLING CYLINDER.

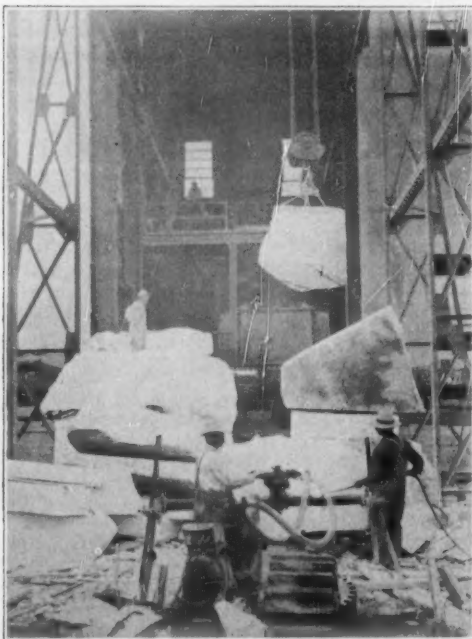
to 50 per cent of all the lime manufactured in the United States, has been announced by John A. Kling, president and general manager of the Kelley Island Lime and Transport Co. This firm has taken over the Ohio and Western Lime Co., and formal amalgamation will be effected April 1.

The Ohio and Western Lime Co. was organized in 1906. It owns and operates five plants at the present time. These are located at Huntington, Ind., and Genoa, Gibsonburg, Marion and Tiffin, Ohio. This company manufactures lump lime, hydrated lime, ground lime, agricultural lime and chemical lime. Its total capacity is approximately 3,000,000 barrels a year. The Kelley Island Lime and Transport Co., already claimed to be the largest producer of lime in the world, will have a significant position in the industry in this country with the merger of the Ohio and Western concern.

Of added importance to the acquisition of the plants and organization of the Ohio and Western



MODERN HYDRATED LIME PLANT OF VERMONT MARBLE CO., PROCTOR, VT.



END OF MILL WHERE BLOCKS ARE HOISTED AND PLACED IN JAW CRUSHER.

firm, is the bringing together of an unusually capable group of lime men, which will make for rapid development for the company from now on.

President Kling is credited with being an organizer of exceptional talent, and long has held a foremost position in the building materials world of the country. He has set a standard of hours of work and business integrity which his active associates emulate. It has been the plan of Mr. Kling to make the Kelley Island Lime and Transport Co. a national institution from the standpoint of high grade product and efficient service. The purchase of the Ohio and Western concern is part of his program along this line.

With the merger the product of ten big plants is now placed at the disposal of the Kelley Island interests, making for one central organization in Cleveland that in turn will give the trade still greater efficiency.

#### CONDITIONS WARRANT PRICE ADVANCE.

Both common and finishing hydrated lime have been advanced during the past month. The manufacturers are under unusually heavy expense because they are forced to carry extensive stocks without being able to ship on account of the freight embargoes. Their storehouses are filled and they have considerable capital tied up in stocks which they cannot ship, and in machinery which they cannot operate. Yet they are compelled to keep their full force of workmen on the pay roll, just warming chairs, in order to have them on the job when they need them.

As an indication of the manner in which lime manufacturers view the uncertainty of present conditions, particularly regarding the instability of prices, all of the larger manufacturers are refusing to quote on any quantity for more than ten days. This has had a serious effect on industrial plants which use large quantities of lime. Many industries use several carloads of lime a month, and heretofore have usually been able to contract for a whole year's supply in advance, because the lime maker could be sure of his cost of production and was always glad to book such contracts. Now, however, manufacturers are refusing to quote large consumers on long time contracts, and are making prices only for a month or two at the most. This would seem to indicate that the lime manufacturers expect prices to advance still more during 1917.

#### NEW LIME VENTURE IN TENNESSEE.

The Interstate Lime Corporation has been organized to develop extensive limestone deposits near Bluff City, Sullivan county, Tenn. The quarries were opened some years ago, when large quantities of fluxing stone were required in Bristol. A

standard-gauge railroad of three miles runs from the Southern Railway to the quarries. The company has been incorporated with capital stock of \$50,000. Kilns and other equipment are to be installed shortly. J. R. Delaney, F. H. Perry, W. E. Sams, W. T. Sams, and J. R. Lowry are the incorporators.

Several advances in lime prices have been made in this territory within the last few months. Most of the unhydrated lime used in the Nashville market comes from Tennessee kilns.

Lime companies in the Nashville section have been shipping heavily to the sugar refineries in Louisiana recently. A strong demand is being noted from this source and many carloads have been sent.

#### EMBARGOES AFFECT LIME SITUATION.

Buffalo, N. Y., March 18.—Lump lime is now selling at \$1.55 a barrel. The lime situation will be severely affected if the railroad embargoes continue. Dealers say that lump lime, if it is to remain fresh and suitable for use, cannot be stored for any considerable time, but must be received in frequent shipments. This feature requires quick action or a "hand-to-mouth" use of lump lime, so that a hold-up of cars for more than a week would be felt in the trade.

New York, March 20.—A new price list for lime is in effect, Eastern common being quoted \$1.65 to — and Eastern finishing \$1.80 to \$1.85. Quotations are wholesale 300-pound barrels. Hydrated common is quoted \$10.25 to — per ton and hydrated finishing \$13.18 to — per ton. Demand is brisk and prospects for the 1917 season most promising.

The Indiana Sand-Lime Brick Co. has been incorporated with a capital of \$60,000 and will manufacture its product at Greenfield, Ind. The directors of the new firm are Ernest L. Dobbins, Samuel D. Clayton and Charles S. Tindall.

#### CLEVELAND LIME MARKET FIRM.

Cleveland, Ohio, March 20.—Demand up to the present for lime has shown no diminution, although with a suspension of building operations, as threatened by the breach between the employers and the laborers here, a letup is possible. Meanwhile local producers are packing material ready for shipment and are stocking up their warehouses. Cooperation



BINS, ELEVATOR AND SACKING MACHINE — IN CENTER IS SHOWN KRITZER SIX-CYLINDER HYDRATOR.

has jumped upward considerably in price, and slightly higher prices are noted on bags. This has served to strengthen lime prices, but no actual advance has been made here as yet.



BATES BAGGING MACHINE SHOWING FOUR BAGS BEING FILLED SIMULTANEOUSLY.

The Agricultural Lime & Stone Co., Clarksburg, W. Va.; capital, \$10,000; the company will operate a plant at Independence, W. Va., for the production of lime and limestone for agricultural and industrial use; incorporators, James H. Irving and Frank C. Turnley, of Independence, and Glen F. Williams and J. E. Law, of Clarksburg.

#### COST OF DOING BUSINESS.

(Continued from page 30.)

dealer alone know his costs. It is important to know that our competitors are able to figure their costs intelligently, because a man who does not know his costs, muddies the water for those who do. There is too great a tendency to meet a competitor's price for no better reason than the boast: "I can afford to sell as cheap as he can." Why should an intelligent merchant who knows his costs and has figured an estimate based on his knowledge of costs allow some other dealer who perhaps does not know what it is costing him to do business fix the price?

But how are we to bring about the better knowledge of costs, and establish confidence necessary to bringing about better selling conditions? Cooperation is the watchword. The attitude of the Federal government toward legitimate business cooperation is much more favorable than it formerly was.

Edward N. Hurley, chairman of the Federal Trade Commission, says:

"The Federal Trade Commission has found that the majority of retail merchants do not know accurately the cost of conducting their business and for this reason they are unable to price their goods intelligently. There must be decided improvement in this direction before competition can be placed upon a sound basis and before we can expect a decrease in the heavy business death rate among retail merchants."

Just recently, three committees in New York, one appointed by the legislature, one by the governor of the state, and one by the mayor of the city, made a joint report on food costs; after diligent investigation. The report disparages all patented short cuts to reduce the cost of living, such as a chain of public markets, and eliminating the middle-man without providing anybody to take his place. Far from recommending prosecution of trusts as a solution of the problem, it urges more trusts—that is—more combination and co-operation.

Happily the spirit of co-operation is taking hold of the business world. We see it on every hand, and to one who observes the signs of the times, there is abundant evidence that we are entering upon an era of better things.



# With the QUARRIES

## Cost of Crushing Stone \$5,020.35 Per Ton

BY R. W. SCHERER.

Operators of stone crushing plants have often been asked the question and will be asked again many times what it costs to crush a yard of stone. This cost depends so much on annual output and fully as much on the daily output, that it is impossible by the most careful accounting and the longest possible experience to predict this cost without knowing the quantity to be produced nor the number of days operating required to produce it. So the figure above announced is as correct as any and more nearly correct, as will be shown, than the forty cents which some optimistic beginner in the business or the superintendent of a municipal plant will give you.

There is probably not another industry in the country involving the investment, the skill and specialized knowledge that it does, in which there is as much confusion in cost accounting as there is in the business of crushing stone.

This is due largely to the fact that in no other business is there the variation in the daily and monthly output nor the difficulty and often prohibitive expense involved in storing the finished product for future shipment. The crushed stone business is always a feast or a famine, seldom or never at a happy balance of supply and demand. In other industries, if your plant is operated at all, it is operated to capacity or somewhere near it, or only part of the plant is operated. Stone crushing plants can be and are operated often to a small percentage of their capacity and the entire plant must be kept going because even with some stock-piling provisions, the demands of the trade compel partial operation of the entire plant during the dull parts of the season.

Operating a plant to less than its capacity is expensive, yet how many operators are there who know just how expensive it is; it is safe to say not one in twenty. The manager of a quarry will compare the cost sheet for August or September with that for March or April and find, even when the customary overhead charges are left out of consideration, a difference in favor of the fat month of ten to twenty cents per yard, in so-called operating expense. The superintendent can and usually does explain the difference with one word: "Volume;" and it may be the correct explanation; yet how much of this difference is due to difference in volume is not known to superintendent or manager and it is impossible to detect even serious leaks; they are apt to go unnoticed particularly in the busy months.

The significance of volume is quite thoroughly appreciated by the crushed stone manufacturers, probably more so than in other manufacturing lines and almost universally overestimated. It is this feature that produces the often ruinous competition among quarrymen; the more you can produce the cheaper you can produce it, and it may, under certain conditions, be good policy to sell stone below cost as determined by previous experience in order to reduce that cost.

Most of the quarrymen in figuring costs do make a thorough separation of all items entering into the cost of manufacture, into the accepted classes of overhead and operating expenses. Yet there are many small operators who never make adequate provision for the overhead, and will assert that they can produce crushed stone in their small plant and with hand work at forty cents per ton. They are deceiving themselves and last only long enough to be a serious menace to legitimate operators. Leaving this class out of consideration, the operators who do attempt to analyze their costs are still far afield if this analysis does not show what should be the difference in operating cost between a fat month or day and a lean month or day.

And such an analysis is easily made from the cost sheets of almost any quarry. We need to further separate operating expenses into two classes or to divide all expenditures into three classes instead of the customary two. Besides the overhead charges such as interest, depreciation, fire insurance, salaries, etc., which are fixed for every year that the plant is operated, there are other charges which are also fixed, that is set, and almost invariable in each plant for every day that it is operated. In a small, say a No. 6 plant, with hand labor in the quarry, these charges consist of such items as the foreman, the crushermen, etc. All are paid the same whether the production for that day is fifty yards or 300 yards. Probably sixty per cent of the power consumed at full load, at least in a steam plant, should be charged to this item, as that percentage would be consumed in running the machinery empty.

In larger plants operated with a steam shovel the cost of this shovel is a fixed daily charge irrespective of the quantity handled up to the capacity of the shovel. Likewise the equipment for transportation from quarry to initial breaker in a modernly equipped plant; if done by dinky engines it is usually the same for a large daily output as for a small production, and the cost of operating these is consequently a fixed daily charge. In a smaller quarry where horses are used, if one horse can do the work for the plant running at capacity and is still indispensable when producing less than the capacity of the plant, this expense is also a fixed daily charge, an "overhead" for that day, on which there is a loss, if it is not fully utilized.

The balance of the expenditures should be put into a third class and are such items as increase with increased output. For instance: in any quarry, in producing 1,000 yards of stone, twice as much drilling and blasting will be required as in producing 500 yards. Certain wearing parts are used up, not by running the crushers idle, but are consumed in a direct ratio to the number of yards crushed. In the hand quarries the charges for breaking and loading belong to this class. Royalties or a corresponding charge for the exhaustion of the deposit, stripping or removing the overburden, if any, also belong to these "per yard" expenses, and all supplies bought can be distributed to a nicety in the same manner.

The point is that a stone crushing plant, differing from other industries in the fact that it can be operated at much less than capacity, requires different accounting than other industries and that the customary division into "overhead" and "operating expenses" does not give a true insight into the possibilities of the business. Another item enters, a fixed and inexorable daily charge, an expense that cannot be avoided nor materially curtailed, no matter how much the output for any single day is reduced. These fixed daily charges are almost universally distributed by accountants under operating expense, whereas they are really overhead, and unavoidable. What every quarryman wants to know is this: if the crushing plant must be operated a certain number of days in the season what will additional tonnage cost to produce with the same number of operating days? Or, in other words, if, in a small plant, the first hundred tons cost seventy-five cents per ton, what will the second hundred tons or the third cost, if produced on the same day? How much will increased volume reduce the cost?

If a thorough analysis of all the expenditures in any one plant has been made, it will be possible for the operator to state in definite figures what the cost of production is, say in the case of a No. 6 plant \$5,000 per year, \$20 for each day that it is necessary to operate, thirty-five cents for each ton that is

produced. And hence the figure given at the head of this article; \$5,020.35 for the cost of crushing a single yard; somewhat drastic, but as near the truth as any figure that has ever been given, and reduction from this amount depends on producing more than one yard and on the number of days operated. In a large plant with all the labor-saving machinery the figures are somewhat like this: Thirty thousand dollars per annum, \$125 for every day of operation, twenty cents per ton produced, exclusive of royalty.

With such a cost analysis, it will be possible to compute with remarkable accuracy, from the experience of a limited output, what the cost of greater production will be, and this is not possible under the present almost universal method of accounting. The operator can face his selling problems with definite knowledge as to what volume, the great cry of all crushermen, will do in the way of reducing costs instead of guessing at it. At present the effect of volume on ton costs is as often overestimated as underestimated.

A concrete problem can be illustrated in this way, taking as an example first a No. 6 plant, in limestone using hand work; from a production of 20,000 tons during one season the following data are determined, though no pretense is made as to the accuracy of the figures for any one plant:

**For Annual Production of 20,000 Tons—150 Days.**

Fixed annual charge (overhead).....	\$ 5,000.00
Fixed daily charges, 150 days at \$20.00....	3,000.00
20,000 tons at 35c per ton.....	7,000.00

20,000 tons cost.....	\$15,000.00
Cost per ton, 75c.....	

From this the cost of 60,000 tons can be computed with safety and with accuracy commensurate with the accuracy of the earlier cost analysis; the figures in each item remaining the same.

**Production of 60,000 Tons—240 Days.**

Fixed annual charge.....	\$ 5,000.00
Fixed daily charges, 240 days at \$12.50....	3,000.00
60,000 tons at 35c per ton.....	21,000.00

60,000 tons cost.....	\$30,800.00
Cost per ton, 51c.....	

In a large steam-shovel plant, the comparison of costs at different volumes of production, might show up somewhat like this, though, as before, no claim is made that the estimates approach actual cost data from any plant:

**For Production of 200,000 Yards in 200 Days.**

Fixed annual charge.....	\$30,000.00
Fixed daily charges, 200 days at \$125.00....	25,000.00
200,000 tons at 20c.....	40,000.00

200,000 tons cost.....	\$95,000.00
Cost per ton, 47½c.....	

**For Production of 300,000 Yards in 240 Days.**

Fixed annual charge.....	\$ 30,000.00
Fixed daily charges, 240 days at \$125.00....	30,000.00
300,000 tons at 20c.....	60,000.00

Cost of 300,000 tons.....	\$120,000.00
Cost per ton, 40c.....	

With such data it will be possible for manager or owner to foretell what a given number of yards produced in a given number of days will cost. The fixed daily charges will remain practically the same. The cost per yard must remain the same with the same methods. They can be compared from month to month, from day to day, or between different plants, and if there is a discrepancy the cause must be sought in some other factor than that of volume. Managers of several quarries will then be justified in comparing costs in different quarries if the methods are the same, even though the volume should vary greatly, whereas under the usual classification, putting everything into operating expense, undue credit may be given one superintendent while another is unjustly blamed.

Furthermore such accounting will give an operator some idea of the value of stock piling, a much vexed question. The cost of stock piling can be ascertained if the quantities to be handled are approximately known, but is the value of stock piling generally known as far as the cost of production is concerned?

In a plant that is being operated to one-half its

capacity, what is the other half costing, the half that is not crushed?

Cost accounting along the line above indicated will reveal this figure, and it is safe to say in a medium-sized plant this loss is greater than the cost of stock piling and reclaiming under ordinary conditions and with some adequate equipment.

Better cost accounting than prevails in 95 per cent of the stone crushing plants will go far towards clearing the atmosphere in the business. To the novice at the game, one fact is very apparent, viz., that by putting three additional men in his hand-worked quarry, an additional carload is produced with scarcely noticeable increase in expenditures beyond the cost of these three men, say \$7.50 per day, and he proceeds to sell that carload at something well above that \$7.50, forgetting that some business sometime must bring in enough to pay not only the large, fixed, daily charges, but the overhead, and that sometime his original investment must come back. The crusher operator who is not charging himself at least 8 per cent depreciation even in a well-maintained plant, whatever the regulations of the corporation tax may prescribe on the subject, is deceiving himself and may be causing his competitors very unnecessary grief.

It is the duty of every manufacturing enterprise to reduce costs, but, as with individuals, its first duty is that of self preservation. Then, between the plant only partially equipped for economic production and the large plants that have virtually gone insane on equipment and almost invariably over-estimated the saving effected by this equipment—somewhere between the two there is the happy mean adapted to the possible markets of any one plant. Between the small operator in a restricted territory on the one hand, who will stoutly assert that it costs one dollar to produce a yard of crushed stone and on the other hand the operator of an over-equipped plant who always gets volume business at thirty cents a ton or less, and never gets anything but volume business, and never makes ends meet, in spite of cost accounting that he thinks is thorough—somewhere between these extremes—there is the happy mean and it can be determined by a rational system of cost analysis.

It is hoped that a thorough analysis, of which this is only the merest outline, as given above, will help to throw light on the subject.

### Wisconsin Adopts Standard Sizes.

The Wisconsin State Highway Commission held a conference with representatives of the Wisconsin Crushed Stone Association in Milwaukee recently, at which a definite standard of sizes for the crusher product used in road construction was established. The same has been promulgated by A. R. Hirst, state highway engineer, in a circular, which follows:

For some years conditions as to sizing of stone and gravel furnished for road construction and for concrete have been unsatisfactory.

Each plant has used screens selected without any definite relation to the screens of other plants, have numbered their sizes to suit themselves, the state has used a different enumeration, and as a result of this lack of co-ordination and co-operation, the sizes of material secured for any work have been more or less a matter of guess work.

On the other hand, engineers and architects have in many cases arbitrarily fixed the sizes of stone used in various projects without any reference to the possibility of getting these sizes or the inconvenience to plants in furnishing them. It, therefore, appealed to the state highway commission that a standardization would be valuable if possible to attain, and negotiations were taken up with the Wisconsin Crushed Stone Producers' Association; the Wisconsin Society of Engineers and State Chief Engineer J. G. D. Mack, with the idea of establishing standard screens and sizes and standard numbers. The results of these conferences have been very satisfactory, and the state highway commission, with the approval of Mr. Mack and committees of the above named bodies, wishes to notify all concerned that the numbers and sizes hereinafter set forth have been adopted as standard sizes of stone and gravel for use in all state and state aid construction.

It is hoped that architects and engineers, engaged in other than state work, will find it possible to assist in this standardization by making their specifications call for material in accordance with these standard sizes.

The members of the Wisconsin Crushed Stone Producers' Association have agreed that, as they renew their screens, they will install screens so that they can furnish materials complying with these standards. The State Highway Commission wishes to point out to both stone and gravel producers that it believes that this standardization, reducing as it does the number of screen sizes in many cases, should

enable them to put in longer screen lengths for each standard size and thus secure a better separation of the materials, especially in the small sizes.

The state standard sizes and numbers are as follows:

No. 1. Material retained on a 2" circular opening and passing a circular opening not greater than 3 1/2" in diameter.

NOTE: Plants may furnish as No. 1 material the product retained on 2" circular screen and passing a circular screen 3 1/2" or less in diameter.

No. 2. Material retained on a 1" circular opening and passing a 2" circular opening.

No. 3. Material retained on a 1/2" circular opening and passing a 1" circular opening.

No. 3 1/2. Material retained on a 3/4" circular opening and passing a 1 1/2" circular opening.

No. 4. All material passing a 1/4" circular opening.

In the future, state specifications from commercial plants will call for No. 1 stone for first course of macadam; No. 2 stone for the second course of macadam; and No. 4 for screenings; Nos. 3 and 3 1/2 will not be used in new macadam construction except that possibly No. 3 1/2 may be used for preliminary screening in certain cases.

For one course concrete roads, state specifications will call for material retained on a 3/4" screen and passing a 2" screen, with no intermediate size removed, being a combination of all materials included in Nos. 2, 3 and 3 1/2.

NOTE: A passing screen smaller than 2" may be used for gravel, quartzite, granite and trap rock aggregate, provided it is not less than 1 1/4".

For two-course concrete work, the state specifications will call for first course, coarse aggregate the same as for one-course concrete. The second course, coarse aggregate will consist of material retained on a 1/2" screen and passing a 1" screen, with no intermediate size removed, being a combination of No. 3 and 3 1/2.

For use in absorbing surface treatments on macadam roads for first application, No. 3 1/2 is recommended; for further applications either No. 3 or a combination of No. 3 and No. 3 1/2. Do not use No. 4, which contains fine sand or dust for absorbing purposes.

The state standard for sand will be all material passing a 1/4" screen, provided that not more than 20 per cent shall pass a sieve having fifty meshes per linear inch, and not more than 5 per cent shall pass a sieve having 100 meshes per linear inch.

All concerned will note that the five sizes specified will ordinarily be separated in the process of production but that it is possible, by remixing these sizes, to produce materials meeting a large number of specifications, and the range of sizes thus secured is believed to be adequate for all architectural and engineering purposes. In all cases requiring remixing, plant managers will please note that a uniform mixture throughout the car will be required and that cars of separated aggregate will be uniformly rejected.

### CAR SHORTAGE HAMPERS QUARRY OPERATIONS.

Cleveland, Ohio, March 20.—Because of the threat of railroads in this territory to effect a complete embargo, practically all shipments of stone from northern Ohio quarries are tied up with little prospect of resumption. Some relief from the car shortage is seen in the supplying of some cars for the west, but these are of little use, first because the shipments must be made over the lines that own the cars, and second because practically all shipments are eastward, where most of the stone is required for building purposes. It is virtually impossible for the Cleveland firms to get eastern cars. Considerable stocking up is now in order at most producing plants, against the time when demand can be met. Labor is more plentiful and satisfied as to wages. Dynamite has taken another slight jump upward, but this has been offset by a reduction in the cost of coal.

### STONE MEN OPTIMISTIC.

New York, March 20.—Optimism prevails among dealers in crushed stone. Proposed road building as well as the erection of mercantile and residential structures calling for large quantities of concrete indicate a lively season for 1917 for the trap rock industry. Wholesale quotations nominal for 500 cubic yard lots f. o. b. alongside dock New York run from a dollar up for inch and a half trap rock and \$1.20 for three-quarters inch.

### STATE ROCK CRUSHERS FAIL.

Several months ago the trustees of the Mississippi penitentiary established rock crushing plants at Okolona and Waynesboro, but so far they have proven dismal and costly failures, says the Birmingham Age-Herald. This is because the rock is damp, it is said, and clogs the machinery. One ton of rock was run through at Okolona, but only after the rock had been burned and dried out. Orders were

then placed for dry kilns, but they have never arrived and the plants are worse than idle. The farmers of the state are demanding the crushed rock, but cannot get it. The legislature ordered these plants established a year or more ago, expecting that everybody would be supplied with rock by this time, and cannot understand the delay.

### BUFFALO QUARRIES EXTEND OPERATIONS.

Buffalo, N. Y., March 19.—The arrival of favorable weather has been followed by extended operations at the quarries in the Buffalo district. Considerable crushed stone will be needed for good roads improvements throughout the state. Plenty of limestone will be used in this territory for fluxing purposes.

New York state barge contracts will require considerable stone this year and next. Convinced that some of the contracts have been delayed unnecessarily, State Engineer Williams has summoned certain canal contractors before the canal board to explain why they have not made better progress. Mr. Williams says some of the contracts must be speeded up, if his promise to the people to open the canal in 1918 is to be fulfilled.

### ANTICIPATE GOOD SEASON.

Pittsburgh, Pa., March 21.—Stone men are waiting anxiously for more bids to come out for road and bridge work. The prospects are excellent for the state of Pennsylvania doing much more road work than last year. Contractors believe that by May 1 there will be almost as many prospects as there were during the entire season of 1916. Prices are going to be higher for the cost of labor at the quarries has been increased fully 30 to 40 per cent in most places and even at that labor is extremely scarce.

### MOVE OPERATIONS TO PRESERVE PARK.

Since the American Refractories Co. has come into possession of quarry property on the east bluff in Devil's Lake Park, Sauk County, Wis., one of the country's scenic wonders, that beautiful place is no longer to be desecrated by dynamiting operations. Through the co-operation of the company with Wisconsin Assemblyman George Carpenter, the former will move its quarrying activities a distance of three-quarters of a mile from the lake.

In the new location the rock can be quarried with less cost than in the old place. The company has been forced to alter its railroad facilities, for which the state has already granted the right of way in consideration for the accommodating and commendable move of the American Refractory Co.

The Clydesdale Stone Co., Pittsburgh, Pa., has had its plant down all winter as have most other concerns in Pittsburgh. Its officers report very little bidding so far. Prices will be considerably higher than last spring, owing to the continued advance in the cost of labor and to the difficulties in getting shipments out. All its 1916 stock is sold out.

The board of trustees and the harbor commission of New Port Beach, Cal., will soon call for bids for the construction of the municipal jetty at the entrance of New Port Harbor. Approximately 45,000 tons of rock will be used in the construction work, which will cost \$100,000.

### NEW QUARRY VENTURES.

The National Rock Products Co., Los Angeles, Cal.; capital, \$200,000; incorporators, M. E. Allard, W. S. Srud and L. G. Coop.

Monarch Quarries Co., Bloomington, Ind.; capital, \$25,000; stone and other building materials; directors: James H. Nolan, John K. Nolan, Harry A. Nolan.

The Quality Cement & Coal Co. of Pittsburgh, capital \$10,000, has been organized to operate in the Cass district of Monongalia county, W. Va., the incorporators being: Isaac J. Jenkins, Stephen Stone, Russell J. Esler, L. G. Walker and S. W. Hawley, all of Pittsburgh.

The Pittsburgh Slag Products Co., Pittsburgh, Pa.; incorporators, L. R. Martin, R. T. Rossell and E. C. McHugh.



# SAND and GRAVEL

## IOWA PRODUCERS HOLD FIRST ANNUAL.

The first annual meeting of the Iowa Sand & Gravel Producers' Association was held at the Hotel Chamberlain, Des Moines, on Friday and Saturday, March 9 and 10. The attendance was large, thirty firms being represented. The program, which had been carefully prepared, gave the producers ample opportunity to study the technical as well as commercial ends of their business.

The association, which was organized at Ames early in February, selected as its officers the following:

President, F. C. Brown, Lake View.  
Vice president, R. C. Fletcher, Des Moines.  
Secretary, W. R. Webster, Mason City.  
Treasurer, Mr. Finch, Sebula.

The organization was perfected at the meeting just held by the adoption of a constitution and by-laws and an increase in the membership. This work comprised the opening session of the convention on Friday morning. It was voted to place the dues at ten dollars for the year 1917 and to regulate the dues for subsequent years by assessments voted by the members at the annual meeting.

Excellent papers were read, after each of which a general discussion took place.

Dean A. Marston, of the College of Engineering at Ames, spoke on the "Future of the Sand and Gravel Industry of Iowa." Prof. T. R. Agg talked on "Requirements of Tests on Sand and Gravel for Highway Use." Prof. T. H. MacDonald, state highway engineer, spoke on work of the highway commission and construction of roads. Prof. W. R. Crum spoke on "Requirements of Sand and Gravel for Concrete." These gentlemen are all connected with the Iowa state college.

E. Guy Sutton, secretary of the National Sand and Gravel Producers' Association, gave a very interesting paper on the government's attitude toward associations and ten-minute talks by the producers themselves on their problems and how they solve them.

On the evening of March 9 a banquet was held at the Chamberlain Hotel for forty covers. The speakers of the evening were Lieut. Gov. Moore, Senator Haskell, Senator Hale, Senator Coburn and Mr. Sutton, who spoke on the results to be obtained from associations.

Many important plans were formulated for the coming season's work and much more had to be left in the hands of the executive committee, as the time was too short to cover all the points.

Taking it all in all, the meeting was a great success and practically every producer in the state (of which there are about 65) has either joined or signified his willingness to become members.

The firms represented at this meeting were:  
Ideal Sand & Gravel Co., Mason City.  
Mason City Sand & Gravel Co., Mason City.  
Wapello Sand & Building Materials Co., Ottumwa.  
Iowa Sand & Gravel Co., Oskaloosa.  
Spencer Cement Block Works, Spencer.  
J. H. Einspanjer, Ft. Madison.  
Frank Cramm & Son, Des Moines.  
Capitol City Sand Co., Des Moines.  
Des Moines Sand & Fuel Co., Des Moines.  
Des Moines Building Materials Co., Des Moines.  
Coon River Sand Co., Des Moines.  
Flint Crushed Gravel Co., Des Moines.  
Lake View Sand & Gravel Co., Lake View.  
Cedar Falls Sand & Material Co., Waterloo.  
Northern Gravel Co., Muscatine.  
Sebula Sand & Gravel Co., Sebula.  
Lincoln Sand & Gravel Co., Lincoln, Ill.  
Standard Sand Co., Hawarden, Iowa.  
Rock Valley Sand & Gravel Co., Rock Valley.  
J. H. Murphy, Marengo.  
The Dalton Co., LeMars.  
Burlington Sand & Gravel Co., Burlington.

Humboldt Sand & Gravel Co., Humboldt.  
Elk River Sand & Gravel Co., Waterloo.  
Cherokee Sand & Gravel Co., Cherokee.  
Ottumwa Sand Co., Ottumwa.  
Portland Sand & Gravel Co., Des Moines.  
McHose Sand & Tile Co., Boone.  
Oak Park Sand Co., Des Moines.  
Commercial Sand Co., Des Moines.

## WILL PERFECT UNIFORM COST SYSTEM.

At a meeting of the Indiana Sand & Gravel Producers' Association, held at Indianapolis, on March 15, steps were taken to perfect a uniform cost system by the appointment of a committee consisting of E. Guy Sutton, O. T. Owen, and Abe Hart. The lateness of the season was responsible for a small attendance but, nevertheless, the association had a rather interesting meeting.

The very serious shortage of cars for the coming season was thoroughly discussed and steps were taken to protect the association members against discrimination by the appointment of the following transportation committee: J. H. Swango, H. E. Neal, H. C. Huffstetter, E. C. Theobald and John Kuert.

The following permanent committees were also announced:

Program committee: B. E. Neal, E. L. Mack, P. A. Stewart, J. A. Shearer and O. T. Owen.

Membership committee: John Kuert, E. A. Baker, H. E. Neal, L. R. Witty and P. W. Lenahan.

Aggregate committee: W. P. Carmichael, H. C. Huffstetter, Morton Miller, H. M. Cooper and D. R. Pierce.

Three additional members were secured as follows: Standard Sand & Gravel Co., Clinton, Ind.; Mt. Carmel Sand & Gravel Co., Mt. Carmel, Ill.; Chas. J. E. Anderson, sales manager, Indiana Sand & Gravel Co., Chicago, Ill.

The state has been divided into five districts, with the members of the executive committee acting as chairmen for the respective district. The association has made a map of the state of Indiana, showing the districts, as well as the location of all the gravel plants in each district.

A very interesting paper was read by E. Guy Sutton, of the Carmichael Gravel Co., on "Hardpan and Clay We May Strike in 1917."

Following is a list of those in attendance:

G. V. Miller, Granite Sand & Gravel Co., Indianapolis.  
A. M. Brown, Brown-Huffstetter Sand Co.  
Jesse A. Shearer and Frank J. Billeter, Indiana Gravel Co., Indianapolis.  
R. M. Pentreth, Standard Sand & Gravel Co., Clinton.  
L. R. Witty, Wabash Sand & Gravel Co., Terre Haute.  
William Nading, Shelbyville, Ind.  
Abe Hart, Hart Bros., Sandborn.  
Chas. J. E. Anderson, Indiana Sand & Gravel Co., Chicago.  
O. T. Owen and F. R. Cornelius, Atlas Sand & Gravel Co., Indianapolis.  
E. A. Baker, Baker Gravel Co., Noblesville.  
G. J. Nattkemper, Summit Sand & Gravel Co., Terre Haute.  
P. A. Stewart, Kickapoo Sand & Gravel Co., Attica.  
W. P. Carmichael and E. Guy Sutton, Carmichael Gravel Co., Williamsport, Ind.  
B. E. Neal, H. E. Neal, H. Elsworth Neal, Fred M. Neal, Neal Gravel Co., Matttoon, Ill., and Indianapolis.  
Chas. A. Hubbard, Martinsville Gravel Co., Martinsville, Ind.

## NEW GRAVEL FIRM FOR CLEVELAND.

A new sand and gravel concern for Cleveland, Ohio, is announced with the reorganization and increased capitalization to \$15,000 of the Aetna Sand and Gravel Co. Headquarters and new yard have been established at 12367 Euclid avenue and Nickel Plate tracks, East End, as well as new overhead equipment for the handling of slag, sand and gravel. A feature of the business is the direct handling of material by overhead conveyors direct from cars

to bins. The business is now under the direction of a group of young Cleveland business men, who have met with instant success in this undertaking. The active heads are P. A. McDaniel, president, and R. K. Sadler, secretary-treasurer. Mr. McDaniel is a graduate of Case School of Applied Science, and Mr. Sadler of Western Reserve University. Directors include the officers and Roy Black, F. W. Bruch and E. B. Sadler. The firm claims to be the only sand washing concern that operated in Cleveland during the below zero weather this winter. Equipment of steam boilers made this possible, according to Secretary Sadler.

## GRAVEL PLANTS RESUME OPERATIONS.

Louisville, Ky., March 20.—High stages in the Ohio river from Pittsburgh, Pa., to Cairo, Ill., have occasioned some uneasiness all along the watershed, but only a few points have suffered from flood damage, although the river has been close to the danger line in many districts. Sand dredging operations were stopped early in the fall by high water and bad weather and will not be resumed until the river falls many feet. During several past winters the sand companies were enabled to work throughout the winter by means of using live steam in their barges to loosen up frozen sand but yard stocks have been depended upon almost entirely this year. With fair weather operations will be resumed in April.

## NEW SAND AND GRAVEL INCORPORATIONS.

J. T. Brand Sand Co., Chicago, Ill.; capital, \$2,500; incorporators, James T. Brand, Henry C. Canber and William A. Iden.

Martinsville Gravel Co., Martinsville, Ind.; capital, \$30,000; incorporators, H. H. Hicks, W. C. Merideth and M. M. Merideth.

Quality Gravel Co., Indianapolis, Ind.; capital, \$5,000; incorporators, J. D. McFerran, Emma McFerran and J. W. McFerran.

Macksville Gravel Co., Terre Haute, Ind.; capital, \$10,000; incorporators, Robert H. McCubbin, Edward L. Shaneberger and Henry L. Ensminger.

Stark Silica Sand Co., Massillon, Ohio; capital, \$4,000; incorporators, William Limbach and William O. Richards.

The Youngstown Sand & Gravel Co., Youngstown, O.; capital, \$10,000; incorporators, A. H. Howatt, H. T. McCartney, H. W. Feather, E. J. Holway and J. W. Morgan.

The Rodgers Sand Co., Pittsburgh, Pa., in addition to three five-ton trucks has a two-ton truck which is one of the busiest vehicles in the city. It has used motor trucks for five years. The company now covers more mileage and handles greater tonnage than ever before in its history. The company's machines work about 200 days per year. They get about four miles per gallon of gasoline with the five-ton machine. The trucks average about fifty miles per day during the busy season. Ten miles is the maximum distance covered from the yards. The company keeps fifty horses for nearby work. It now has two big yards in Pittsburgh and is taking 2,000,000 tons of sand and gravel a year from the Allegheny and Monongahela rivers. Twenty-three steel barges, thirteen wooden barges and 100 flats are used by this company. Its wooden barges hold 160 tons and its steel barges 500 tons. The company figures the cost of each of these five-ton motor trucks to be about twenty dollars per day, but each truck does the work of five teams.

The Tioga Gravel Co., Alexandria, La., has bought the Vicksburg, Alexandria and Southern Railway, which connects the gravel plant in the pine woods to the north with Alexandria, paying approximately \$150,000 for the road. The company will operate it.

# GYPSUM PRODUCTS

## Gypsum Extended to Load Bearing Building Units

BY VIRGIL G. MARANI, M. AM. SOC. C. E.  
Consulting Engineer.

The United States Gypsum Co. has for many years been experimenting in an effort to develop a class of gypsum from which building materials could be molded into various shapes and forms so that the field of gypsum would no longer be limited to interior plastering and light non-bearing partition tile, but would be extended to building units and constructions capable of carrying loads and receiving stresses.

As the result of exhaustive tests conducted by Prof. W. A. Slater at Illinois University, the United States Gypsum Co. is now serving building demands by supplying a specially prepared gypsum product termed "Structolite." The constructions using this material can be designed and calculated upon precisely the same assumption as are used in designs for reinforced concrete structures.

"Structolite" weighs seventy-seven pounds to the cubic foot (one-half the weight of concrete) sets in fifteen to thirty minutes, and can be erected,

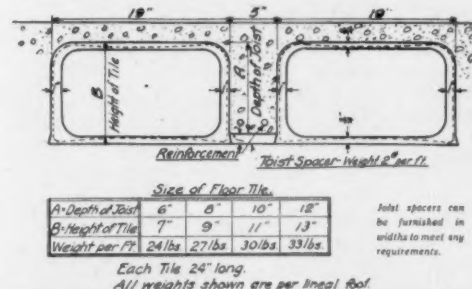
permits of a 1" slab of the same material as the gypsum tile being placed under the concrete joist before concrete is poured, so that when the forms are removed there is a uniform surface of gypsum which is smooth enough to remain unplastered in factory building construction, and which affords an excellent base to plaster upon in cases where plaster is desired.

The advantage of an all gypsum surface to plaster upon by having the bottom of the joists covered with gypsum slabs is obvious, since the surface being ideally smooth, the amount of plaster required to present a good job is the minimum, and when the construction has dried out there never can be the usual dark outline of the concrete joists upon the finished ceiling, an objection which is so common in cases where the plaster coat is applied to surfaces of different density such as clay tile and concrete.

Another advantage in the use of these filler tile

used, and since all of the lumber is protected from coming in contact with the concrete by the slab pieces to which reference has been made, all of the form work is good salvage and can be used for any other operations in the building.

Another important item of saving lies in the fact



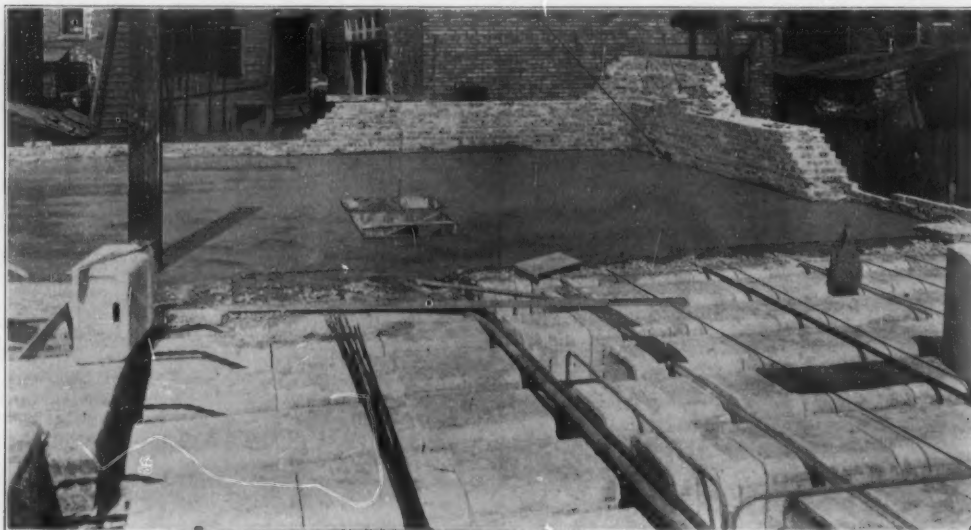
SKETCH SHOWING CROSS SECTION OF THE TILE AS THEY ARE INTENDED TO BE USED.

that because of the wider spacing possible in the concrete joists, the amount of concrete saved for the lightest floor construction, namely 6", is more than 7 per cent and for the heaviest floor construction, namely 12", this saving is almost 10 per cent. Considering the saving in weight of concrete by using less of it, and the saving in weight of filler tile by using lighter tile, it will be seen that this saving is all important as being applied to the construction in general, and the cost of same, and is also invaluable when considering such saving and applying it to the permitted live load for the construction in question.

As stated in the first portion of this article, these tile are made of a specially prepared gypsum termed "Structolite." They are also suitably reinforced to carry the loads of floor design in combination with the reinforced concrete, are also designed with the view of standing the shocks and abuse incidental to building operations. Numerous tests have been made upon these tile with the result that a tile unsupported by concrete at the sides (which would be the case in actual practice) safely sustained a load for the full length of the tile which amounted to over 600 pounds per square foot of tile surface.

This strength and the fact that the tile are reinforced make possible a thinner concrete floor slab between "T" beams.

In the early development of these tile the question was raised as to whether "Structolite" would have a damaging effect upon the strength of concrete when poured and set against it. The R. W. Hunt Co., testing engineers of Chicago, conducted exhaustive tests to determine this feature, with the result that in crushing strength concrete allowed to set in contact with previously wetted "Structolite"



DAWES HOTEL BUILDING, CHICAGO—ATTENTION IS CALLED TO THE FACT THAT SINCE THESE TILE ARE PROVIDED WITH SOLID ENDS THEY CAN BE LEFT WHEREVER NECESSARY TO PERMIT FOR THE PASSAGE OF LARGE PIPING WHICH, FROM NECESSITY, HAS TO CROSS THE FLOOR CONSTRUCTION AT RIGHT ANGLES TO THE CONCRETE JOISTS.

walked upon or used within two hours after being poured. Pouring operations of whatever nature can be conducted in temperatures as low as zero F. without any damage to the construction.

Since these tests have developed the fact that "Structolite" designs act like reinforced concrete, that the material can be reinforced, and that in compression it has an ultimate value ranging between 2,000 to 3,200 pounds per square inch, according to the density of the material, the United States Gypsum Co. has applied this knowledge to the construction of a floor filler tile which is being used in the place of burned clay filler tile in reinforced concrete "T" beam constructions where it is necessary to use some form of incombustible filler between the concrete beams.

The advantages of this gypsum floor tile are briefly as follows:

The tile are 19" wide and therefore permit of a distance between 5" concrete joists of 24"; with the standard clay tile, the distance between 5" concrete joists would have to be 17".

The height of the tile is so that it is 1" deeper than the depth (or stem) of the concrete joist. This

is the question of weight. In the case of places where the smallest size tile is used, namely 6", the weight per square foot of such a tile of hard burned clay is twenty-two pounds, whereas in the case of the gypsum tile its weight is fifteen pounds. Then, taking the heaviest tile generally used, namely, 12", in the case of hard burned clay tile the weight is in the neighborhood of thirty-seven pounds per square foot, whereas in the case of gypsum tile its weight is only twenty-one pounds. Similar saving of dead weight is obtainable in intermediate sizes.

Another important saving is the question of concrete waste and necessary form work. Since, as stated, these tile are 19" wide, 2"x8" boards spaced 24" on centers are sufficient for laying the tile, the tile themselves being 24" long and made in true, smooth molds, when laid end to end constitute an excellent form, between and over which the concrete is to be poured. These tile, end to end, fit closely and for this reason there is no waste of the concrete material; also, the total amount of form work necessary in terms of per square foot of floor area is less than two board feet of lumber.

There is less nailing because there is less lumber

SAVING IN CONCRETE AND DEAD LOAD PER SQUARE FOOT FLOOR AREA USING PYRODUR FLOOR TILE SPACED 24" CENTERS AS COMPARED WITH CLAY TILE SPACED 16" CENTERS USING 2" CONCRETE TOP

DEPTH OF JOIST	6"	8"	10"	12"
Pyrodur Floor Tile	15.0	21.0	27.0	33.0
Clay Tile	22.0	37.0	43.0	49.0
WGT OF CONCRETE	42.0	43.0	45.0	47.0
WGT OF VOID	12.0	14.5	17.5	20.5
TOTAL DEAD LOAD	57.0	58.5	64.5	67.5
SAVING DEAD LOAD	7.5%	8.4%	9.2%	9.8%
SAVING IN CONCRETE	35.0	35.0	35.0	35.0

TABLE SHOWING SAVING WHEN USING TILE IN SIZES 6"x8"x10" AND 12".

floor tile is 16 per cent stronger than when set without such contact; for a period of three months the crushing strength of concrete was about the same when set along or in contact with dry "Structolite," but when set in contact with wet "Structolite" increase of strength in concrete was over 17 per cent.



# CLAY PRODUCTS

## BRICK MAKERS IN THIRTY-FIRST ANNUAL.

The thirty-first annual convention of the National Brick Manufacturers' Association was held at the McAlpin hotel, New York City, March 5 to 10. Owing to coal and labor trouble at the plants, many of the members were unable to be present and, therefore, the attendance fell far short of expectations, but the register showed an attendance of about 275 men engaged either in the manufacture or sale of clay products.

The convention opened Wednesday morning, March 7, with prayer by the Rev. James B. Wasson. In behalf of the Mayor, John Mitchell, who was unable to be present, Robert Adamson, fire commissioner of New York, welcomed the visitors. R. C. Burton, of the Burton-Townsend Co., Zanesville, Ohio, responded to Mr. Adamson's welcome. Charles J. Deckman, president of the association, then took the chair and delivered the annual address.

A very interesting financial report was read by John W. Sibley, the veteran treasurer of the association, showing a surplus on hand of \$997.53, the largest surplus ever reported since the organization of the association.

Following the reading of Mr. Sibley's report was the election of officers resulting as follows:

President, Fritz Salmen, Slidell, La.  
First vice-president, George H. Clippert, Detroit, Mich.

Second vice-president, J. W. Robb, Clinton, Ia.  
Third vice-president, W. K. Hammond, New York City.

Secretary, Theodore A. Randall, Indianapolis, Ind.  
Treasurer, John W. Sibley, Birmingham, Ala.

The following speeches were delivered and received with great interest:

Samuel G. Webb, chairman of the National Fire Resistance Council, New York City, spoke on the opportunities presented in an organization of all the manufacturers of such materials.

"Economic Competition Through Associations" was the title of a paper to be read by C. B. Platt, Van Meter, Ia., but owing to this gentleman's absence the salient points of the paper were given by W. E. Dunwoody of Macon, Ga. Mr. Dunwoody followed the reading of the paper with a discussion that was exceedingly interesting and full of suggestions for effective association work. "Example is better than precept," according to this gentleman and he certainly showed what a little co-operation and getting down to business will accomplish.

"Properties of Structural Clay Products," illustrated by lantern slides, was the subject of a talk

by A. V. Bleining of the United States Bureau of Standards.

"Mining Clay," also illustrated, was given by J. B. Stoneking, in the absence of J. H. Squiers, Wilmington, Del.

"Brickmaking on the Hudson River," W. K. Hammond, New York City.

W. H. Taylor of the New Jersey Co. gave a talk on the methods of his company's plant at Matawan where producer gas is used as fuel in the burning of brick and where many modern devices and machines are employed.

"Handling Brick in Large Units," illustrated, was the subject of an address by Christopher Steadman, New York.

A description of the plant of the Hebron (N. D.) Fire and Pressed Brick Co. was given by Carl B. Harrop.

"Beauty in Brick," by Prof. of the New York State School of Clayworking and Ceramics, Charles F. Binns, was also illustrated by slides.

"Brick Vitrification," by Arthur S. Watts of the Ohio State University's Ceramic Department, was succeeded by "Brick for Paving Heavy Traffic Highways," by William C. Perkins of Conneaut, Ohio. Both talks were illustrated.

"Brick Paving for City and County Highways" was given by John W. Sibley of Birmingham, Ala., and illustrated by lantern slides.

It was decided by the committee, which had been appointed to determine upon a sum to be appropriated for the prosecuting of technical investigation work, to pursue the same course that had been followed in years past of settling a small sum approximately \$250 per annum, for the use of the technical investigating committee and leave it to its own resources for whatever additional assistance may be needed.

A report of the technical investigating committee was given by Prof. Orton.

The smokerette, which was announced for Wednesday evening, March 7, was well attended, the ladies being present.

The annual banquet took place on Thursday evening, March 8, and after a musical concern impromptu speeches were made by the Rev. William Wasson, Herman Mueller and John W. Sibley.

A number of interesting brick and stucco residences, recently erected at Boulder, Colo., are shown in "Expanded Metal Construction," house organ of the Northwestern Expanded Metal Co., Chicago, Ill.

## TRADE NOTES.

The Austin-Western Road Machinery Co., Chicago, has just issued a folder on the Austin tandem motor roller, a description of which, together with illustrations of its working parts, is a feature.

The most interesting and complete white cement book ever published is now ready for distribution by the Sandusky Cement Company, 626 Engineers Building, Cleveland, O. It conforms to the size adopted by the American Institute of Architects and has seventy-five half-tone illustrations of work done in this country and abroad in which Medusa white Portland cement was an important factor. It contains much information about stucco—colors, finishes, aggregates, etc., and also covers other subjects for which Medusa white is particularly suitable—concrete blocks, bridges, floors, mantels, artificial marble, building trim, pergolas, garden furniture, ornamental cast stone, monuments, grave stones and concrete specialties. Tests, specifications and testimonials are also shown. Architects, contractors, block makers and artificial stone manufacturers will find the new Medusa white cement catalog extremely valuable. It will be sent without charge, on request, to readers of ROCK PRODUCTS AND BUILDING MATERIALS.

"Concrete Highway Construction," is the name of an interesting booklet just published by the Atlas Portland Cement Co. It contains interesting instructions relative to the formation of highways and is profusely illustrated. It should be in the library of everyone interested in this work or in the delivery of materials for road work as it contains a number of tables showing actual costs of delivery. W. T. Chollar is manager of the highway department of the Atlas company.

The Portland Cement Association has issued a pamphlet entitled, "Why Build Fireproof?"

The March issue of "Leschen's Hercules," house organ of A. Leschen & Sons Rope Co., St. Louis, Mo., contains a very interesting article on concrete construction as performed in Cincinnati high school buildings.

"Federal Traffic News," house organ of the Federal Motor Truck Co., Detroit, Mich., contains, in addition to many illustrations of motor trucks in actual use, an exceptionally interesting picture of Faneuil Hall and Market at Boston, Mass.

The plant of the Western Indiana Gravel Co., at Lafayette, Ind., is interestingly described and illustrated in the March issue of "Webster Method," house organ of The Webster Manufacturing Co., Tiffin, Ohio.

**You Should Write Us for the "WHAT, WHY and HOW" of "BOSTWICK" BUILDING METAL GOODS**

**BOSTWICK**



It contains interesting selling talk that will enable you to cash in on present conditions in the building industry.

You may not know it, but "Bostwick Truss-Loop" metal lath is your one best bet for the 1917 season. Why?

**ASK US**

**THE BOSTWICK STEEL LATH COMPANY, Niles, Ohio**

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS

The market place of the building material industry. Employment department, machinery wanted and for sale, etc. If your wants are not answered in this page, write a letter to this office.

**THE FRANCIS PUBLISHING CO.**  
537 S. Dearborn Street Chicago, Illinois

# THE BOURSE

Advertisements will be inserted in this section at the following rates:  
For one insertion.....25 cents a line  
For two insertions.....45 cents a line  
For three insertions.....60 cents a line  
Eight words of ordinary length make one line.  
Headings counts as two lines.  
No display except the headings can be admitted.  
Remittances should accompany the order. No extra charges for copy of paper containing the advertisement.

## EMPLOYMENT WANTED

Quarry Superintendent. Ten years' experience; now employed; best of references. Address Box 1194, care ROCK PRODUCTS AND BUILDING MATERIALS.

Position Wanted—Superintendent of Quarry, Crushing or other plant. Several years as superintendent of large quarry. Experienced office and salesman. Will consider any kind of position with future. Reference. Address Box 1191, care ROCK PRODUCTS AND BUILDING MATERIALS.

WANTED—Position as quarry superintendent or general manager. A thoroughly competent quarry operator of long experience desires position where knowledge and ability are factors in economical operation. Will only consider contract on tonnage basis, or salary and bonus. Excellent references. Address Box 1168, care ROCK PRODUCTS AND BUILDING MATERIALS.

CONNECTION WANTED  
With business institution in capacity of treasurer or assistant manager. Can qualify and give best of references as to character and ability. Especially interested in the possibility of growing with the business and acquiring a working interest. Experience during the past four years includes handling financial matters of present employer, together with general charge of office force of from ten to fifteen clerks. Twenty-nine years old; single. Address Box No. 333, care ROCK PRODUCTS AND BUILDING MATERIALS.

## FOR SALE

- 1—B & W Water tube boiler, 250 H.P.
- 1—Ball automatic engine, 250 H.P.
- 1—Cochran receiver-separator, 6" connections.
- 1—Fairbanks rope drive complete, 1" rope with two 42" dia. five groove sheaves.
- 1600 ft. 1" new transmission rope.

Above all in good condition. Taken out on account of installing electric power.

**ROCK CUT STONE COMPANY**  
531 Union Bldg. Syracuse, N. Y.

Paper Bags  
of  
Quality.

For All Purposes

The Jaite Company

Boston, Ohio

Strongest, Most Flexible

A 2 Cent Stamp  
Will Bring You the  
Latest Booklet on

## Mortar Colors

Written by our  
Mr. P. B. Edridge

**CALVERT MORTAR COLOR WORKS**

Warner & Wooster Sts. Dept. R, Baltimore, Md.

## MACHINERY FOR SALE

FOR SALE—Tube Mill, 5'x22' Sillex Lining, made by Power & Mining Co. Good condition. Bay State Brick Co., Indian Orchard, Mass.

FOR SALE—One Zagemeyer Cast Block Mould 8x8x16, 30 Block, Steel Car, Rock Face with attachments for End and Half Blocks. One U. S. Standard Junior Tamp Block Machine 8x8x16, with full set plates for Rock, Panel and Plain Face, and fractional Blocks—three hundred pallets.  
W. R. Lewis, Rockford, Ohio.

FOR SALE CHEAP—Drag Line equipped with Clyde three drum hoist, twin 9x10 Engines, 160 pound steam pressure boiler, all in good condition; used three months. Mounted on timber construction which travels on rails. Must be seen to be appreciated. BATTJES FUEL & BUILDING MATERIAL COMPANY, Grand Rapids, Mich.

### FOR SALE

- 1—20x42 Filer & Stowell Corliss Engine.
- 1—20x42 Vilter Corliss Engine, Rope Drive.
- 1—18x42 Allis Corliss Engine.
- 1—16x36 Allis Corliss Engine.
- 1—14x36 Nordberg Corliss Engine.
- 1—12x28 Allis Corliss Engine.
- 1—16x24 Atlas Slide Valve Engine.
- 2—150 H.P. Butt Strapped Triple Riveted Boilers.
- 2—80 H.P. Butt Strapped Triple Riveted Boilers.

Hoisting Engines and Pumps of all sizes and makes.  
Address MERTES MACHINERY CO., Milwaukee, Wis.

## PLANTS FOR SALE

FOR SALE—2 Second-hand Kent Mills. Address Box 1195, care ROCK PRODUCTS AND BUILDING MATERIALS.

For Sale—Complete stone crushing plant, engines, boilers, crushers, drills and storage bins in first class condition. Large supply of stone, good track connections and excellent market. Address Box 1197, care ROCK PRODUCTS AND BUILDING MATERIALS.

For Sale—Silica Sand Plant, with established trade, manufacturing sand for steel furnace bottoms, steel casting, heating furnaces, and motor or track sand. Capacity 80 to 100 cars per month. On reasonable terms. Apply to Geo. M. Harton, Room 910 Berger Bldg., Pittsburgh, Pa.

For Sale—STONE CRUSHER PLANT, Complete Equipment, Buildings, Engine, Boilers, No. 6 Gates Gyratory Crusher, Ingersoll & Sargent Air Compressor, Hoisting Equipment, Screens, Elevator, etc. Only operated six months. William Burnside, Bellefonte, Pa.

## SILICA SAND PLANT

For Sale Cheap

Practically inexhaustible supply of silica rock located on New York Central R. R. at Hartford, Trumbull County, Ohio. Fully equipped plant with daily capacity of 150 tons of silica sand suitable for glass, motor, steel casting and furnace bottoms.

This offers a rare opportunity for one who understands the sand business, as all equipment is the best money can buy and the plant in first class condition, and everything can be bought for about

**One-Fifth Its Actual Value**

If interested write or inquire of the Hartford Stone Co., Youngstown, Ohio.

## BUSINESS OPPORTUNITIES

For Sale or Lease—A fine quarry site on main line of Southern R. R., 15 miles south of Danville. Good town around it. Crushed stone in demand. Address C. J. Warner, Ruffin, N. C.

## MACHINERY WANTED

Wanted—1½ or 2 yard drag line outfit, 500 foot span and an electric hoist for same. Address 748 N. 40th St., Philadelphia, Pa.

Locomotives, Steam Shovels, Cars, Locomotive Cranes, Stone Crushers, Air Compressors, Hoisting Engines, Grab Buckets, Etc.

We are headquarters for dependable "used" equipment and solicit your inquiries

**WM. B. GRIMSHAW CO.**

1048 Drexel Bldg., Philadelphia, Pa.  
DEALERS IN "USED" BUT "NOT ABUSED" MACHINERY

## "RAILS"

All sections of new and relay rails in first-class condition. Splice Bars, Frog, Switches and Spikes also carried in stock. We purchase abandoned plants and cheerfully quote prices on any material that you may have to dispose of.

M. K. FRANK, Frick Bldg., Pittsburgh, Pa.

## Anchor Brand Colors

For Mortar, Cement and Brick  
Brown, Black, Red and Buff  
Strongest and Most Durable

Manufactured by **C. K. Williams & Co.**  
Correspondence Solicited Easton, Pa., U. S. A.



Ford Motor Building, Minneapolis  
Kees & Colburn, Architects, Minneapolis  
Splady, Albee & Smith, General Contractors, Minneapolis

A Carload of

## Cabot's Mortar Color

(BLACK) WAS USED IN THIS BUILDING

This is what users think of it:

Winnipeg, Manitoba, January 20, 1915.  
Dear Sirs: I have had a great deal of experience with different Brands of Mortar Colors, trying to get one that would have the strength to overcome the burning nature of lime, and have found Cabot's Mortar Colors far superior to any other in this respect. Besides, Cabot's Mortar Colors, being in a "paste" form, mix readily with the mortar and do not form into little balls like dry colors, and naturally penetrate into the pores of the mortar, making a permanent color. I am convinced that this color is worth at least twice as much as others on the market.

Yours very truly, (Signed) FRED HINDS.

Send for prices on the Strongest, Most Uniform, Easiest to Mix and Most Lasting Mortar Colors made.

**Samuel Cabot, Inc., Manufacturing Chemists, Boston**  
1133 Broadway, N. Y. Makers of 24 W. Kinzie St., Chicago  
Cabot's Creosote Stains, Old Virginia White, Cabot's "Quilt," Conserve Wood Preservative, Dampproofing, Stucco and Brick Stains, etc.



# WHITEHALL

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## PORTLAND CEMENT

**Whitehall Cement  
Manufacturing Co.**  
1722 Land Title Bldg.  
Philadelphia

# Northwestern Portland Cement



## The Reliable Portland Cement

## A Portland Cement for the

# NORTHWEST

**NORTHWESTERN STATES PORTLAND CEMENT COMPANY**

**MASON CITY, IOWA**

## "CONCRETE FOR PERMANENCE"

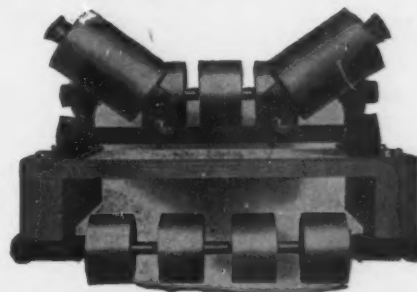
## Concrete for Permanence "Wolverine" for Concrete

**Wherever used "Wolverine" has  
always given the highest satisfaction**

**WOLVERINE PORTLAND CEMENT CO.**  
**COLDWATER, MICH.**

Write for prices and information. W. E. COBEAN, Gen. Sales Agt.

## IMPROVED BELT CONVEYORS



The cost of handling large quantities of material is one of the great problems in any manufacturing plant. To carry **Crushed Stone, Lime, Ore, Clay, Sand, Gravel, Coal, etc.** by **Belt Conveyor** means small first cost with large output at the minimum expenditure of labor.

The above design of **Belt Concentrator** has been found entirely satisfactory in every kind of service. It troughs the belt and at the same time provides proper support where most needed to sustain the weight of material being carried.

The Lubricating arrangement is convenient and thorough and the use of grease for lubrication provides not only the best means of lubricating the pulleys but also has the effect of keeping the bearing surfaces clean and providing a dust-seal around the ends of the pulley hubs.

We manufacture **Helicoid** and **Screw Conveyors**, **Chain and Cable Conveyors** for handling **Rock, Lime, Sand, etc.**, also **Elevators, Shafting, Couplings, Bearings, Collars, Pulleys, Gears, Sprocket Wheels, Elevator Bolts, etc.**

# H. W. CALDWELL & SON Co.

**CHICAGO:** Western Avenue, 17th to 18th Street

**NEW YORK:** Hudson Terminal, 50 Church St.

**DALLAS:** 711 Main Street

## ROCK PRODUCTS and BUILDING MATERIALS

## Index to Advertisements

MARCH 22, 1917

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# CLASSIFIED BUSINESS DIRECTORY

## BAGS AND BAG MACH'Y.

Taite Company, The.

## BAG TIES.

Bates Valve Bag Co.

## BELTING.

H. W. Caldwell & Co.  
Dull & Co., R. W.  
Goodrich Co., B. F.  
Imperial Belting Co.  
New York Rubber Co.  
Revere Rubber Co.  
Webster Mfg. Company.  
Weller Mfg. Co.

## BRICK.

Metropolitan Paving Brick Co.

## BRICK CLAMPS.

The P. D. Crane Co.

## BRICK PAVING.

Metropolitan Paving Brick Co.

## BUCKETS, DUMPING AND GRAB.

Atlas Car & Mfg. Co.  
H. W. Caldwell & Co.  
Haiss Mfg. Co., Inc., Geo.  
Hendrick Mfg. Co.  
Lakewood Engineering Co.  
McMyler-Interstate Co.

## CABLES.

American Steel & Wire Co.  
Dull & Co., R. W.  
Leachen & Sons Rope Co.  
Sauerman Bros.

## CALCINING MACHINERY.

Atlas Car & Mfg. Co.  
Vulcan Iron Works.

## CARS, INDUSTRIAL.

Atlas Car & Mfg. Co.  
Austin Mfg. Co.  
Haiss Mfg. Co., Inc., Geo.  
Lakewood Engineering Co.  
Stephens-Adamson Mfg. Co.  
Traylor Engineering & Mfg. Co.  
Weller Mfg. Co.

## CASTINGS.

Allis-Chalmers Mfg. Co.  
Traylor Eng. & Mfg. Co.

## CEMENT, HYDRAULIC.

Carolina Portland Cement Co.

## CEMENT, PORTLAND.

Alpha Portland Cement Co.  
Atlas Portland Cement Co.  
Carolina Portland Cement Co.  
Cincinnati Portland Cement Corp.  
Coplay Cement Mfg. Co.  
Dixie Portland Cement Co.  
Edison Portland Cement Co.  
French, Samuel H. & Co.  
Huron Wyandotte Port. Cement Co.  
Kosmos Portland Cement Co.  
Lehigh Portland Cement Co.  
Northwestern States Portland Cement Co.  
Peerless Portland Cement Co.  
Penn-Allen Port. Cement Co.  
Sandusky Cement Co.  
Standard Portland Cement Co.  
Whitehall Portland Cement Mfg. Co.  
Wolverine Port. Cement Co.

## CHAINS.

Jeffrey Mfg. Co.

## CLAYWORKING MCHY.

American Clay Mch. Co.  
Bartlett, C. O., & Snow Co.

## COLORINGS DRY AND MORTAR.

Samuel Cabot.  
Calvert Mortar Color Wks.  
Chattanooga Paint Co.  
Ricketson Mineral Paint Works.  
Williams, C. K., & Co.

## COMPRESSORS.

Allis-Chalmers Mfg. Co.  
Clayton Air Compressor Co.  
International Steam Pump Co.  
Power & Mining Mach. Works.

## CONCRETE MIXERS.

Lakewood Engineering Co.  
Miscampbell, H.  
Power & Mining Mach. Co.

## CONCRETE REINFORCEMENT.

American Steel & Wire Co.

## CONSULTING GEOLOGISTS.

Hunt, Robt. W., & Co.

## CORNER BEADS.

Berger Mfg. Co.  
Sykes Metal Lath & Roofing Co.

## CRANES—LOCOMOTIVE AND GANTRY.

Byers Mach. Co., John F.  
McMyler-Interstate Co.  
Ohio Locomotive Crane Co.

## CONVEYORS AND ELEVATORS.

Allis-Chalmers Manufacturing Co.  
Atlas Car & Mfg. Co.  
Austin Mfg. Co.  
Bartlett, C. O., & Snow Co.  
Caldwell, H. W., & Sons Co.  
Dull, Raymond W., & Co.  
Ehram, J. B., & Sons Mfg. Co.  
Haiss Mfg. Co., Inc., Geo.  
Jeffrey Manufacturing Co.  
McMyler-Interstate Co.  
McLanahan Stone Machine Co.  
Power & Mining Mach. Co.  
Stephens-Adamson Mfg. Co.  
Toepfer, W., & Sons.  
Traylor Engineering & Mfg. Co.  
Webster Mfg. Company.  
Weller Mfg. Co.

## CRUSHERS AND PULVERIZERS.

Allis-Chalmers Manufacturing Co.  
American Pulverizer Co.  
Austin Mfg. Co.  
Bacon, Earl C.  
Bartlett, C. O., & Snow Co.  
Bradley Pulverizer Co.  
Butterworth & Lowe.  
Chalmers & Williams.  
Ehram, J. B., & Sons Mfg. Co.  
Good Roads Machy. Co.  
Jeffrey Manufacturing Co.  
K-B. Pulverizer Co.  
Kent Mill Co.  
Lehigh Car. Wheel & Axle Co.  
Lewistown Foundry & Machine Co.  
McLanahan Stone Machine Co.  
Pennsylvania Crusher Co.  
Power & Mining Mach. Works.  
Raymond Bros. Impact Pulverizer Co.  
Stedman's Fdy. & Mach. Wks.  
Sturtevant Mill Co.  
Traylor Eng. & Mfg. Co.  
Webb City & Carterville F. & M. Wks.  
Williams Pat. Crusher & Pulverizer Co.  
Worthington Pump & Mach. Corp.

## DREDGES.

Osgood Co., The.

## DRILLS.

Jeffrey Mfg. Co.  
Sanderson-Cyclone Drill Co.

## DRYERS.

American Process Co.  
Bartlett, C. O., & Snow Co.  
Ruggles-Coles Eng. Co.  
Traylor Engineering & Mfg. Co.  
Vulcan Iron Works.

## ENGINEERS.

American Process Co.  
Bacon, Earl C.  
Dull, Raymond W., & Co.  
Fuller Engineering Co.  
Hunt, Robt. W., & Co.  
Improved Equipment Co.  
Sauerman Bros.  
Smith & Co., F. L.  
Stephens-Adamson Mfg. Co.  
Traylor Eng. & Mfg. Co.  
Yates, Preston K.

## ENGINES.

Allis-Chalmers Mfg. Co.  
Power & Mining Mach. Co.

## EXCAVATORS.

Dull, Raymond W., Co.  
Haiss Mfg. Co., Inc., Geo.  
Indianapolis Cable Excavator Co.  
McMyler-Interstate Co.  
Osgood Co., The.  
Sauerman Bros.  
Weller Mfg. Co.

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Improved Equipment Co.

## FURNACES FOR SPECIAL PURPOSES.

Improved Equipment Co.

## FUSES.

Ensign-Bickford Co.

## GAS PRODUCERS.

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## GATES.

Haiss Mfg. Co., Inc., Geo.

## GEARS.

Caldwell, H. W., & Son Co.  
Jeffrey Mfg. Co.  
Stephens-Adamson Mfg. Co.  
Weller Mfg. Co.

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## GYPSUM—PLASTER.

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Cardiff Gypsum Co.  
Carolina Portland Cement Co.  
National Mortar & Supply Co.  
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Haiss Mfg. Co., Inc., Geo.

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Metropolitan Paving Brick Co.

## HYDRATING MCHY.

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Kritzer Co., The.  
Miscampbell, H.  
Stacy-Schmidt Mfg. Co.  
Toepfer, W., & Sons Co.  
Vulcan Iron Works.

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Mitchell Lime Co.  
National Mortar & Supply Co.  
Scioto Lime & Stone Co.

## LIME, HYDRATED.

Kelley Island Lime & Transport Co.  
Mitchell Lime Co.  
National Mortar & Supply Co.  
Scioto Lime & Stone Co.

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Improved Equipment Co.  
Stacy-Schmidt Mfg. Co.  
Vulcan Iron Works.

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Jeffrey Mfg. Co.  
Stephens-Adamson Mfg. Co.  
Weller Mfg. Co.

## LOCOMOTIVES.

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Jeffrey Mfg. Co.

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Bostwick Steel Lath Co.  
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Sykes Metal Lath & Roofing Co.  
Trussed Concrete Steel Co.

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General Electric Co.

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Federal Motor Truck Co.  
Garford Motor Truck Co.  
Kissel Motor Car Co.  
Pierce Arrow Motor Car Co.  
White Company, The.

## PAINT AND COATINGS.

Cabot, Samuel.  
Calvert Mortar Color Wks.  
Chattanooga Paint Co.  
French, Sam'l H., & Co.  
Ricketson Mineral Paint Co.  
Trus-Con. Laboratories.  
Williams, C. K., & Co.

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Hendrick Mfg. Co.  
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## PLASTER.

See Gypsum.

## PLASTER BOARD.

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U. S. Gypsum Co.

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Dunning, W. D.  
Ehram, J. B., & Sons Mfg. Co.  
Miscampbell, H.  
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Du Pont de Nemours Co., E. I.

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International Steam Pump Co.  
Traylor Engineering & Mfg. Co.  
Worthington Pump & Mach. Corp.

## QUARRY CARS.

See Cars.

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Osgood Co., The.

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Bourse.

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Worthington Pump & Mach. Corp.

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Sandusky Cement Co.  
Trus-Con. Laboratories.

## WEIGHING MACHINES.

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## WIRE AND WIRE FENCING.

American Steel & Wire Co.


## WIRE ROPE.

American Steel & Wire Co.  
Leschen, A., & Sons Co.

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS



CONCRETE FOR PERMANENCE

## "ROYAL" Portland Cement

It is carried in stock at all times by a dealer in every town of any size in the Southeastern States. It has been and is being used in the most important engineering work in the South, for concrete roads, bridges, buildings, power dams, silos, walks, etc.

Write us or ask your local dealer for free copies of "Concrete in the Country" and "Concrete Highways."

**DIXIE PORTLAND CEMENT CO.**  
James Building CHATTANOOGA, TENN.

## CAROLINA PORTLAND CEMENT COMPANY

We are the largest distributors of Portland Cement, Lime Plaster, Fire-brick and General Building Material in the Southern States, and have stocks of Standard Brands at all of the Atlantic and Gulf Seaports, and at our interior mills and warehouses, for prompt and economical distribution to all Southern territory. Write for our delivered prices anywhere.

Also Southern agents for the "Dehydrating" waterproofing material. "Universal," "Acme" and "Electroid" Brands Ready Roofing.

GET OUR PRICES

**CHARLESTON, S. C.**  
**ATLANTA, GA.**

**BIRMINGHAM, ALA.**  
**NEW ORLEANS, LA.**

WHEN YOU ABSOLUTELY KNOW THAT

## Ricketson's Mortar Colors

are pure and brilliant in tone, economical in application and a permanent guarantee against fading and washing

**Why not INSIST on having them?**

They are the acknowledged best for all uses—Mortar, Brick, Cement, Concrete and stone. Red, Brown, Buff, Purple and Black.



**YOU CAN'T FADE 'EM**

**RICKETSON MINERAL PAINT WORKS, MILWAUKEE, WIS.**

GOODS OF RECOGNIZED QUALITY ARE THE DEALER'S BEST INSURANCE POLICY



Customers cannot be driven, but are apt to be led to the dealer who carries materials of recognized merit.

**Samuel H. French & Co.**  
Etab. 1844 PHILADELPHIA

**FRENCH'S CEMENT**  
THE BACKBONE OF PERMANENT CONSTRUCTION

## Look at This List!

These following magazines reaching in total about 30,000,000 people will carry Trus-Con Advertisements during the next few months:

Saturday Evening Post	Collier's Weekly
Literary Digest	American Magazine
Outlook	Metropolitan
Independent	Cosmopolitan
National Geographic	Review of Reviews
Harper's Weekly	Engineering News
House Beautiful	Engineering Record

American Architect  
Architectural Forum  
Engineering & Contracting  
Concrete  
Cement World  
Modern Building

Are you one of those dealers who will reap the benefit of the tremendously increasing demand for Trus-Con Products which this advertising creates?

If you are not already, there is still time to make arrangements before the deluge of inquiries begins. Write today.

## THE TRUS-CON LABORATORIES

*Manufacturers and Inventors of*  
Waterproofings, Dampproofings, Technical Paint  
Coatings and Floor Hardeners.

**DETROIT, MICHIGAN**

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS

# BANNER HYDRATE LIME

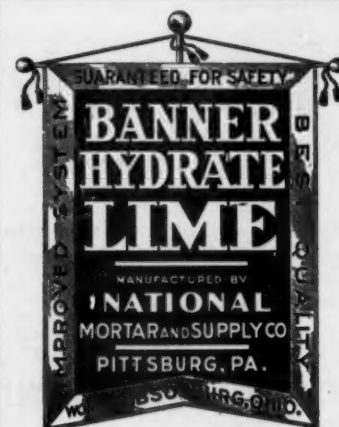
*Carries more sand for Mason Work,  
than any other lime on the market*

FOR INFORMATION APPLY TO THE

**NATIONAL MORTAR & SUPPLY COMPANY**

A. H. Lauman. *President*

PITTSBURGH, PA.



## IF IT IS LIME

**WE MAKE IT**

(STRONGEST IN OHIO)

**B**ULK and Barreled --- "MASON'S HYDRATE"—For Brick-work, plastering and masonry. --- "LIME FLOUR"—Hydrated Finishing Lime—Best on the Market. --- "CLOVER GROWER"—Land restorer, for the farmer—none better. --- "CARBO HYDRATE"—Soil sweetener—crop producer. --- Prompt shipments. --- A dealer wanted in every town. --- **WRITE OR PHONE FOR PRICES.**

**The Scioto Lime and Stone Co.**

Delaware, Ohio



DIME SAVINGS BANK,  
DETROIT, MICH.  
McNulty Brothers,  
Plastering Contractors.

## A Million Dollars

Is not spent carelessly. That is why all the walls of this finest of Michigan buildings are finished with

"Lion Brand  
Rock  
Wall Finish"  
Hydrated Lime.

Write us

**Ohio and  
Western  
Lime Co.**

Huntington, Indiana

*The Largest  
Producers  
of Ohio and  
Indiana  
Lime*

A Steady  
Seller



**T**HERE is always a steadily growing demand for Tiger Brand.

Architects are making it their standard specification, contractors are urging its use and dealers are getting the benefit.

**The Kelley Island  
Lime & Transport  
Co. Cleveland, O.**

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS



# Mitchell Hydrated and Lump Lime

— in 1916 was shipped into —  
**One-Third of the United States**

THERE is a REASON: It is *SERVICE* and *QUALITY*

**DEALERS:** BUY YOUR LIME from a reliable and progressive company. We can take care of you promptly, and with our dealers' co-operative system help you make MORE SALES—hence MORE PROFITS. MITCHELL LIME satisfies, as it is manufactured to meet the demands of the most exacting contractors and other trade.

It is a great satisfaction to know when your order is placed with us it will be shipped on time—no worry about your stock or danger of delay in building operations. We have the facilities for prompt shipments. *SERVICE* and *QUALITY* count, and this is the reason we shipped this past year MITCHELL LIME into one-third of the states of the UNION.

Write us for full information about HYDRATED  
 LIME in mortar and concrete mixtures.

## MITCHELL LIME COMPANY

MITCHELL, INDIANA

# BOOKS FOR THE TRADE

### Architects and Engineers

- Building Construction and Superintendence—  
 Masonry Work  
 F. E. Kidder. Price \$2.00. C
- Theory of Steel-Concrete Arches and Vaulted  
 Structures  
 Wm. Cain. Price \$2.50. C
- Concrete Country Residences. Price \$1.00. C
- Graphical Handbook for Reinforced Concrete  
 Design  
 John Hawksworth, C. E. Price \$2.50. C
- Theory and Design of Reinforced Concrete  
 Arches  
 Arvid Reuterdahl. Price \$2.00. C
- Treatise on Concrete, Plain and Reinforced  
 F. W. Taylor and R. E. Thompson. Price  
 \$5.00. C
- Concrete Steel  
 W. N. Twelveteen. Price \$1.00. C
- General Specifications for Concrete Work as  
 Applied to Building Construction  
 Wilbur J. Watson. Price \$0.50. C
- Rocks, Minerals and Stocks  
 F. H. Smith. Price \$1.50. C
- Strength of Materials  
 Edward R. Maurer. Price \$1.00. C
- Highway Construction  
 Austin J. Byrne and Alfred R. Phillips.  
 Price \$1.00. C
- Refrigeration  
 Chas. Dickerman and Francis H. Boyer.  
 Price \$1.00. C
- Plumbing  
 Wm. Beall, Gray and Chas. E. Ball. Price  
 \$1.50. C
- Estimating  
 Edward Nichols. Price \$1.00. C
- Building Superintendence  
 Edward Nichols. Price \$1.50. C
- Hollow Tile House  
 Squire. Price \$2.50. C
- Rock Excavating and Blasting  
 J. J. Cagrove. Price \$2.50. J J C
- Reinforced Concrete in Practice  
 A. A. Scott. Price \$1.75. V
- New Building Estimates  
 Arthur. Price \$2.00. D W C

### Cement and Lime Manufacturers

- Bungalows, Camps and Mountain Houses  
 Price \$2.00. C
- Instructions to Inspectors on Reinforced Con-  
 crete Construction  
 Geo. P. Carver. Price \$0.50. C
- Cements, Limes and Plasters  
 Edwin C. Eckel. Price \$2.00. C
- Practical Treatise on Limes, Hydraulic Cements  
 and Mortars  
 Geo. Q. A. Gilmora. Price \$4.00. C
- Mortars, Plasters, Stuccos, Cements, Portland  
 Cements and Compositions  
 F. Hodgson. Price \$1.50. C
- Concrete Factories  
 Robert W. Linsley. Price \$1.00. C
- Portland Cement; Composition  
 Richard K. Meade. Price \$4.50. C
- Manufacture of Concrete Blocks  
 Wm. M. Torrance and others. Price  
 \$1.50. C
- Practical Cement Testing  
 W. Purves Taylor. Price \$2.00. C
- Foundation and Concrete Works  
 E. Debeon. Price \$0.50. C
- Reinforced Concrete. Mechanic and Elementary  
 Design  
 John F. Broekha. Price \$2.00. C
- Concrete and Stucco Houses  
 O. C. Hering. Price \$2.00. C
- Concrete Costs  
 Taylor-Thompson. Price \$1.00. C
- Concrete on the Farm and in the Shop  
 H. Colin Campbell. Price 75c. M. P. C.
- Estimating the Cost of Buildings  
 Joslin. Price \$1.50. D W C
- Contractors and Builders' Handbook  
 Price \$2.00. D W C
- Handy Estimate Blanks  
 Joslin. Price 25c.

### Cement Users

- Portland Cement for Users  
 Henry Falja and D. E. Butler. Price  
 \$1.50. C
- Cements, Mortars and Concrete  
 Myron C. Falk. Price \$2.00. C
- Reinforced Concrete  
 W. H. Gibben and W. L. Webb. Price  
 \$1.00. C
- Hand Book of Cost, Data  
 Halbert P. Gillette. Price \$2.00. C
- Concrete Construction  
 H. P. Gillette and C. S. Hill. Price  
 \$5.00. C
- Cement Workers' and Plasterers' Ready  
 Reference  
 H. G. Richey. Price \$1.50. C
- Reinforced Concrete  
 A. W. Buel and C. S. Hill. Price \$2.00. C
- Concrete  
 Edward Godfrey. Price \$2.50. C
- Reinforced Concrete  
 C. F. Marsh and Wm. Dunn. Price  
 \$7.00. C
- Practical Treatise on Foundations  
 W. Patton. Price \$2.00. C
- Concrete  
 Thomas Potter. Price \$2.00. C
- Cement and Concrete  
 Louis C. Sabin. Price \$2.00. C
- Concrete and Reinforced Concrete Construction  
 Homer A. Reid. Price \$2.00. C
- Handbook on Reinforced Concrete  
 F. D. Warren. Price \$1.50. C
- Popular Handbook for Cement and Concrete  
 Users  
 Myron H. Lewis & A. E. Chandler. Price  
 \$2.50. C
- A Manual of Cement Testing  
 Richards & North. Price \$1.00. V
- A Treatise on Cement Specifications  
 Jerome Cochran. Price \$1.00. V
- Manual of Reinforced Concrete and Concrete  
 Block Construction  
 Chas. F. Marsh and Wm. Dunn. Price  
 \$2.50. V

**ROCK PRODUCTS AND BUILDING MATERIALS, 537 South Dearborn Street, CHICAGO**

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS

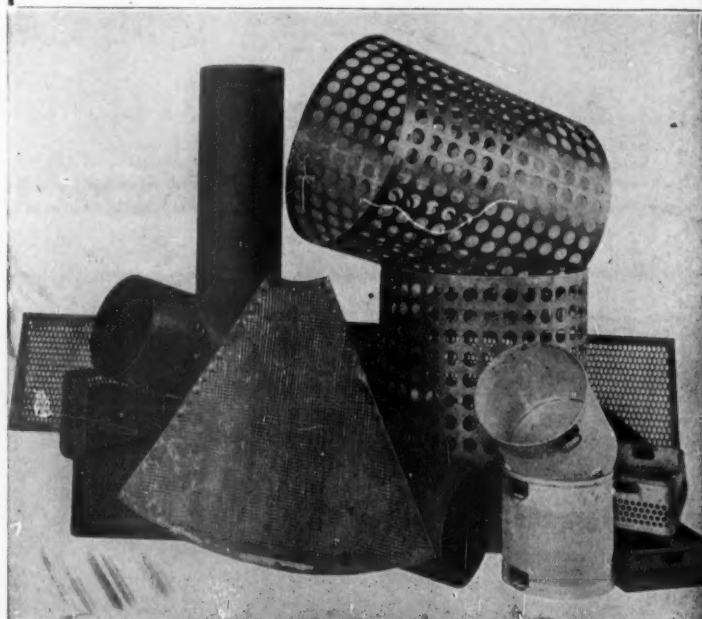
— The  
**Toepfer  
Hydrator**

was two years in continuous use at one plant working ten hours daily before being put on the market. Another machine installed last season will pay for itself in one year at its present rate of saving over former methods. This machine was started by an inexperienced man and turned out a first class product from the very first day. THAT SHOWS THE SIMPLICITY OF THE TOEPFER HYDRATOR.

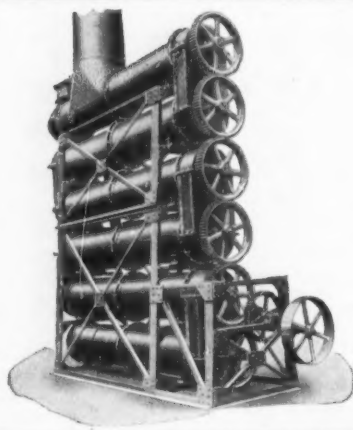
**W. Toepfer & Sons Co.**  
MILWAUKEE

**PERFORATED METAL**

Steel Screens ∴ ∴ Iron and Steel Work



ELEVATOR BUCKETS, STEEL TANKS, ETC.  
**W. TOEPFER & SONS CO.**  
84 Menominee St. ESTABLISHED 1855 Milwaukee, Wis.



**Hydrated Lime**  
THE KRITZER WAY

Insures a product which has a standard market value. We install plants complete, designed by our own expert engineers to meet local conditions and turn out a uniform grade of Hydrated Lime of the highest standard, and with the greatest economy in cost of production. The Kritzer Continuous Hydrator, and the accessories installed with it, are the recognized standards in this line.

**THE KRITZER COMPANY, 72 W. Adams St., Chicago, Ill.**



Clyde Hydrator with Hood  
"The common sense way"

**SIMPLICITY** IS THE KEYNOTE  
OF SUCCESS

IT does not take a "master mind" to install a CLYDE Hydrating plant, nor does it take a "high priced" engineer to run one. If **YOU**, Mr. Lime Manufacturer, realized how simple it is to obtain a PERFECT HYDRATE, with the CLYDE HYDRATOR you would place your order with us by FIRST MAIL. Write us today—NOW, and let us explain to you what CLYDE PROCESS hydrated lime is and how to obtain the best results, then

*Use your own judgment—it's up to you*

**H. MISCAMPBELL, Duluth, Minn.**

Patentee and Sole Manufacturer

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS

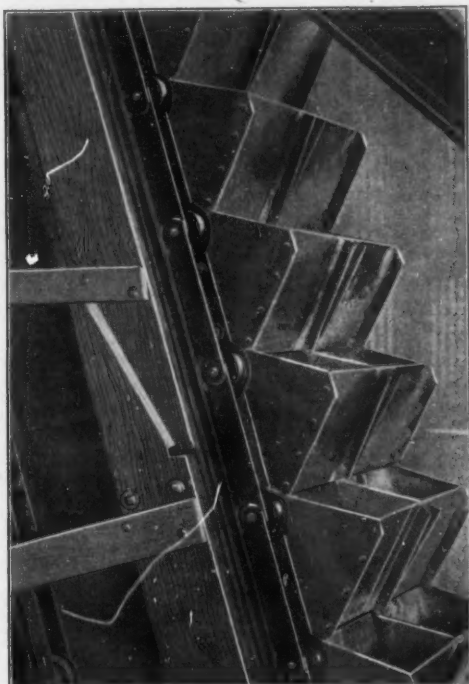


# BUCKET ELEVATORS

on Steel Bar Chain

*for*

Crushed Stone, Sand and Gravel  
and Similar Materials



Double Compartment Bucket for Gravel and Crushed Stone

THE slow-moving continuous-bucket elevator has become the standard means of raising material from crusher to screens or bins.

Webster Steel Chain Elevators give you a chance to get away from the old belt type over which the chain elevator has these advantages:

1. Lower First Cost.
2. Longer Life. It is steel against fabric.
3. Lower Maintenance Costs. The wearing parts are easily and cheaply renewed without damaging the whole, as in the case of splicing a belt or replacing buckets.
4. Steadier operation. The chain rollers run on steel guides.
5. There is no chance for material to get between buckets and belt to work the buckets loose.

We design Special Elevators to suit individual cases

*Have You Our Catalog?*

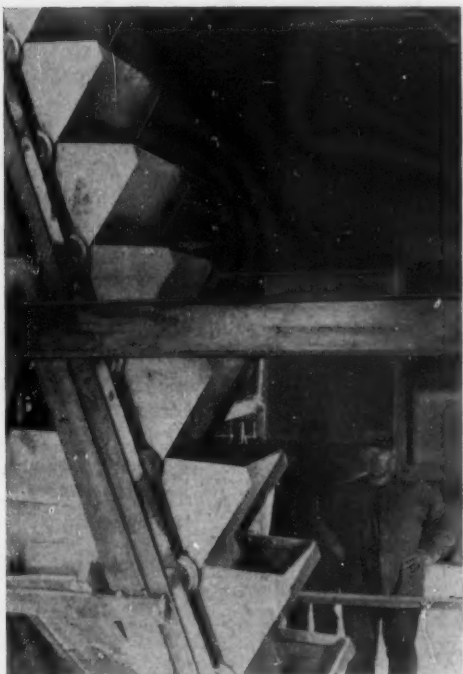
**The Webster M'f'g Company**

TIFFIN, OHIO

CHICAGO

(169)

NEW YORK



27" x 14" Buckets handling Stone from a No. 6 Gyratory Crusher

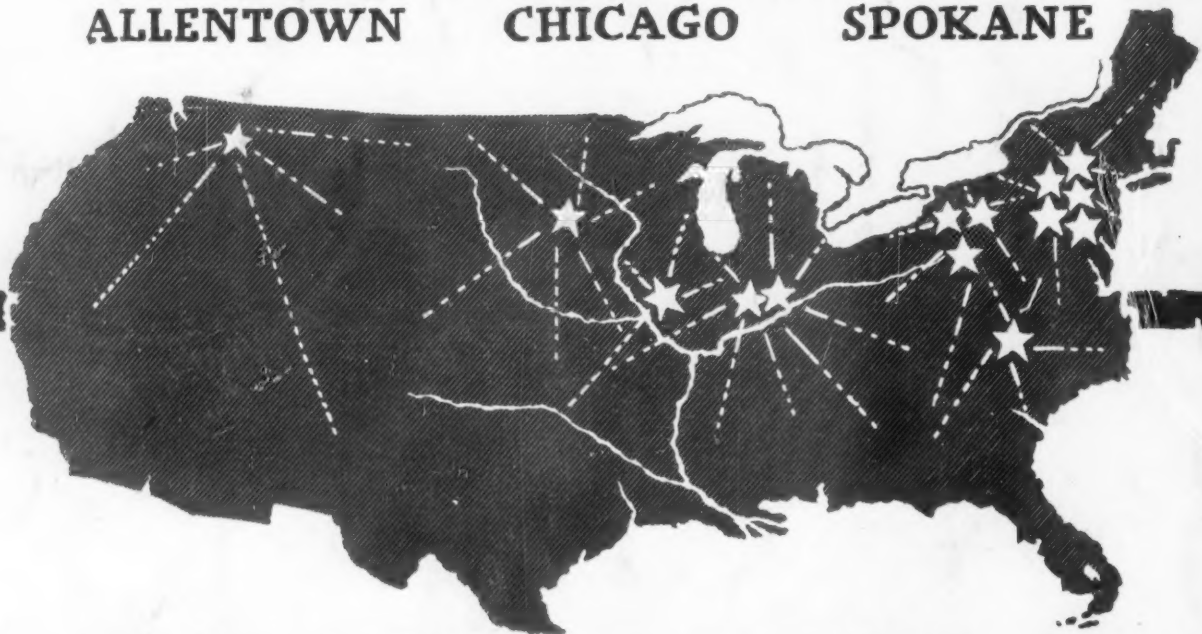
Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS

# The National Cement.



**F**ourteen mills owned  
and operated. Distribu-  
tion from coast to coast.

**LEHIGH PORTLAND CEMENT CO.**  
ALLENTOWN      CHICAGO      SPOKANE



Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS





# GYPSUM PRODUCTS

## Gypsum Extended to Load Bearing Building Units

BY VIRGIL G. MARANI, M. AM. SOC. C. E.  
Consulting Engineer.

The United States Gypsum Co. has for many years been experimenting in an effort to develop a class of gypsum from which building materials could be molded into various shapes and forms so that the field of gypsum would no longer be limited to interior plastering and light non-bearing partition tile, but would be extended to building units and constructions capable of carrying loads and receiving stresses.

As the result of exhaustive tests conducted by Prof. W. A. Slater at Illinois University, the United States Gypsum Co. is now serving building demands by supplying a specially prepared gypsum product termed "Structolite." The constructions using this material can be designed and calculated upon precisely the same assumption as are used in designs for reinforced concrete structures.

"Structolite" weighs seventy-seven pounds to the cubic foot (one-half the weight of concrete) sets in fifteen to thirty minutes, and can be erected,

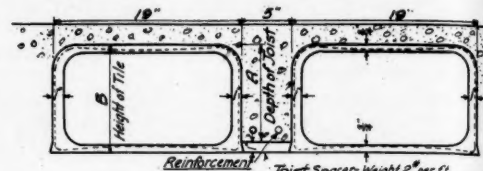
permits of a 1" slab of the same material as the gypsum tile being placed under the concrete joist before concrete is poured, so that when the forms are removed there is a uniform surface of gypsum which is smooth enough to remain unplastered in factory building construction, and which affords an excellent base to plaster upon in cases where plaster is desired.

The advantage of an all gypsum surface to plaster upon by having the bottom of the joists covered with gypsum slabs is obvious, since the surface being ideally smooth, the amount of plaster required to present a good job is the minimum, and when the construction has dried out there never can be the usual dark outline of the concrete joists upon the finished ceiling, an objection which is so common in cases where the plaster coat is applied to surfaces of different density such as clay tile and concrete.

Another advantage in the use of these filler tile

used, and since all of the lumber is protected from coming in contact with the concrete by the slab pieces to which reference has been made, all of the form work is good salvage and can be used for any other operations in the building.

Another important item of saving lies in the fact



Size of Floor Tile			
A-Depth of Joist	6"	8"	10"
B-Height of Tile	7"	9"	11"
Weight per sq. ft.	24 lbs	27 lbs	33 lbs

Each Tile 24" long.  
All weights shown are per lineal foot.

Joist spacers can be furnished in widths to meet any requirements.

SKETCH SHOWING CROSS SECTION OF THE TILE AS THEY ARE INTENDED TO BE USED.

that because of the wider spacing possible in the concrete joists, the amount of concrete saved for the lightest floor construction, namely 6", is more than 7 per cent and for the heaviest floor construction, namely 12", this saving is almost 10 per cent. Considering the saving in weight of concrete by using less of it, and the saving in weight of filler tile by using lighter tile, it will be seen that this saving is all important as being applied to the construction in general, and the cost of same, and is also invaluable when considering such saving and applying it to the permitted live load for the construction in question.

As stated in the first portion of this article, these tile are made of a specially prepared gypsum termed "Structolite." They are also suitably reinforced to carry the loads of floor design in combination with the reinforced concrete, are also designed with the view of standing the shocks and abuse incidental to building operations. Numerous tests have been made upon these tile with the result that a tile unsupported by concrete at the sides (which would be the case in actual practice) safely sustained a load for the full length of the tile which amounted to over 600 pounds per square foot of tile surface.

This strength and the fact that the tile are reinforced make possible a thinner concrete floor slab between "T" beams.

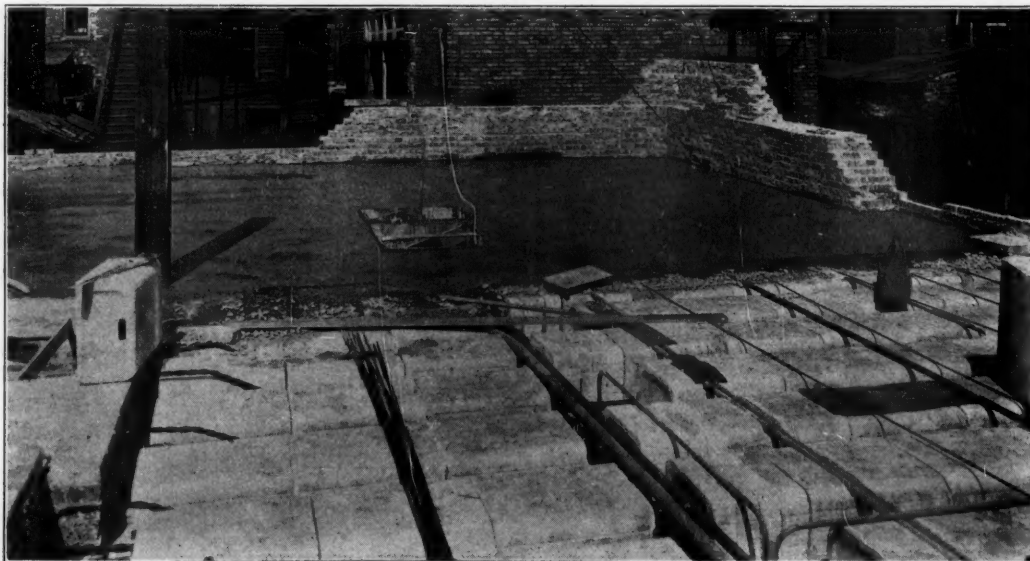
In the early development of these tile the question was raised as to whether "Structolite" would have a damaging effect upon the strength of concrete when poured and set against it. The R. W. Hunt Co., testing engineers of Chicago, conducted exhaustive tests to determine this feature, with the result that in crushing strength concrete allowed to set in contact with previously wetted "Structolite"

SAVING IN CONCRETE AND DEAD LOAD PER SQUARE FOOT FLOOR AREA USING PYROBRAR FLOOR TILE SPACED 24" CENTERS AS COMPARED WITH CLAY TILE SPACED 16" CENTERS USING 2" CONCRETE TOP

DEPTH OF JOIST	6"	8"	10"	12"
Pyrobrar Floor Tile	269	305	340	375
Clay Floor Tile	291	333	375	416
Vol. of Concrete	4.44	4.50	5.10	5.63
Wgt. of Concrete	120	135	150	165
Wgt. of Void	120	135	150	165
TOTAL DEAD LOAD	324	390	465	540
Saving Dead Load	7.5% OR 8.4% OR 9.2% OR 9.8% OR			

TABLE SHOWING SAVING WHEN USING TILE IN SIZES 6"x8" AND 12".

floor tile is 16 per cent stronger than when set without such contact; for a period of three months the crushing strength of concrete was about the same when set along or in contact with dry "Structolite," but when set in contact with wet "Structolite," increase of strength in concrete was over 17 per cent.



DAWES HOTEL BUILDING, CHICAGO—ATTENTION IS CALLED TO THE FACT THAT SINCE THESE TILE ARE PROVIDED WITH SOLID ENDS THEY CAN BE LEFT WHEREVER NECESSARY TO PERMIT FOR THE PASSAGE OF LARGE PIPING WHICH, FROM NECESSITY, HAS TO CROSS THE FLOOR CONSTRUCTION AT RIGHT ANGLES TO THE CONCRETE JOISTS.

walked upon or used within two hours after being poured. Pouring operations of whatever nature can be conducted in temperatures as low as zero F. without any damage to the construction.

Since these tests have developed the fact that "Structolite" designs act like reinforced concrete, that the material can be reinforced, and that in compression it has an ultimate value ranging between 2,000 to 3,200 pounds per square inch, according to the density of the material, the United States Gypsum Co. has applied this knowledge to the construction of a floor filler tile which is being used in the place of burned clay filler tile in reinforced concrete "T" beam constructions where it is necessary to use some form of incombustible filler between the concrete beams.

The advantages of this gypsum floor tile are briefly as follows:

The tile are 19" wide and therefore permit of a distance between 5" concrete joists of 24"; with the standard clay tile, the distance between 5" concrete joists would have to be 17".

The height of the tile is so that it is 1" deeper than the depth (or stem) of the concrete joist. This

is the question of weight. In the case of places where the smallest size tile is used, namely 6", the weight per square foot of such a tile of hard burned clay is twenty-two pounds, whereas in the case of the gypsum tile its weight is fifteen pounds. Then, taking the heaviest tile generally used, namely, 12", in the case of hard burned clay tile the weight is in the neighborhood of thirty-seven pounds per square foot, whereas in the case of gypsum tile its weight is only twenty-one pounds. Similar saving of dead weight is obtainable in intermediate sizes.

Another important saving is the question of concrete waste and necessary form work. Since, as stated, these tile are 19" wide, 2"x8" boards spaced 24" on centers are sufficient for laying the tile, the tile themselves being 24" long and made in true, smooth molds, when laid end to end constitute an excellent form, between and over which the concrete is to be poured. These tile, end to end, fit closely and for this reason there is no waste of the concrete material; also, the total amount of form work necessary in terms of per square foot of floor area is less than two board feet of lumber.

There is less nailing because there is less lumber



# CLAY PRODUCTS

## BRICK MAKERS IN THIRTY-FIRST ANNUAL.

The thirty-first annual convention of the National Brick Manufacturers' Association was held at the McAlpin hotel, New York City, March 5 to 10. Owing to coal and labor trouble at the plants, many of the members were unable to be present and, therefore, the attendance fell far short of expectations, but the register showed an attendance of about 275 men engaged either in the manufacture or sale of clay products.

The convention opened Wednesday morning, March 7, with prayer by the Rev. James B. Wasson. In behalf of the Mayor, John Mitchell, who was unable to be present, Robert Adamson, fire commissioner of New York, welcomed the visitors. R. C. Burton, of the Burton-Townsend Co., Zanesville, Ohio, responded to Mr. Adamson's welcome. Charles J. Deckman, president of the association, then took the chair and delivered the annual address.

A very interesting financial report was read by John W. Sibley, the veteran treasurer of the association, showing a surplus on hand of \$997.53, the largest surplus ever reported since the organization of the association.

Following the reading of Mr. Sibley's report was the election of officers resulting as follows:

President, Fritz Salmen, Slidell, La.  
First vice-president, George H. Clippert, Detroit, Mich.

Second vice-president, J. W. Robb, Clinton, Ia.  
Third vice-president, W. K. Hammond, New York City.

Secretary, Theodore A. Randall, Indianapolis, Ind.  
Treasurer, John W. Sibley, Birmingham, Ala.

The following speeches were delivered and received with great interest:

Samuel G. Webb, chairman of the National Fire Resistance Council, New York City, spoke on the opportunities presented in an organization of all the manufacturers of such materials.

"Economic Competition Through Associations" was the title of a paper to be read by C. B. Platt, Van Meter, Ia., but owing to this gentleman's absence the salient points of the paper were given by W. E. Dunwoody of Macon, Ga. Mr. Dunwoody followed the reading of the paper with a discussion that was exceedingly interesting and full of suggestions for effective association work. "Example is better than precept," according to this gentleman and he certainly showed what a little co-operation and getting down to business will accomplish.

"Properties of Structural Clay Products," illustrated by lantern slides, was the subject of a talk

by A. V. Bleining of the United States Bureau of Standards.

"Mining Clay," also illustrated, was given by J. B. Stoneking, in the absence of J. H. Squiers, Wilmington, Del.

"Brickmaking on the Hudson River," W. K. Hammond, New York City.

W. H. Taylor of the New Jersey Co. gave a talk on the methods of his company's plant at Matawan where producer gas is used as fuel in the burning of brick and where many modern devices and machines are employed.

"Handling Brick in Large Units," illustrated, was the subject of an address by Christopher Steadman, New York.

A description of the plant of the Hebron (N. D.) Fire and Pressed Brick Co. was given by Carl B. Harrop.

"Beauty in Brick," by Prof. of the New York State School of Clayworking and Ceramics, Charles F. Binns, was also illustrated by slides.

"Brick Vitrification," by Arthur S. Watts of the Ohio State University's Ceramic Department, was succeeded by "Brick for Paving Heavy Traffic Highways," by William C. Perkins of Conneaut, Ohio. Both talks were illustrated.

"Brick Paving for City and County Highways" was given by John W. Sibley of Birmingham, Ala., and illustrated by lantern slides.

It was decided by the committee, which had been appointed to determine upon a sum to be appropriated for the prosecuting of technical investigation work, to pursue the same course that had been followed in years past of settling a small sum approximately \$250 per annum, for the use of the technical investigating committee and leave it to its own resources for whatever additional assistance may be needed.

A report of the technical investigating committee was given by Prof. Orton.

The smokerette, which was announced for Wednesday evening, March 7, was well attended, the ladies being present.

The annual banquet took place on Thursday evening, March 8, and after a musical concern impromptu speeches were made by the Rev. William Wasson, Herman Mueller and John W. Sibley.

A number of interesting brick and stucco residences, recently erected at Boulder, Colo., are shown in "Expanded Metal Construction," house organ of the Northwestern Expanded Metal Co., Chicago, Ill.

## TRADE NOTES.

The Austin-Western Road Machinery Co., Chicago, has just issued a folder on the Austin tandem motor roller, a description of which, together with illustrations of its working parts, is a feature.

The most interesting and complete white cement book ever published is now ready for distribution by the Sandusky Cement Company, 626 Engineers Building, Cleveland, O. It conforms to the size adopted by the American Institute of Architects and has seventy-five half-tone illustrations of work done in this country and abroad in which Medusa white Portland cement was an important factor. It contains much information about stucco—colors, finishes, aggregates, etc., and also covers other subjects for which Medusa white is particularly suitable—concrete blocks, bridges, floors, mantels, artificial marble, building trim, pergolas, garden furniture, ornamental cast stone, monuments, grave stones and concrete specialties. Tests, specifications and testimonials are also shown. Architects, contractors, block makers and artificial stone manufacturers will find the new Medusa white cement catalog extremely valuable. It will be sent without charge, on request, to readers of ROCK PRODUCTS AND BUILDING MATERIALS.

"Concrete Highway Construction," is the name of an interesting booklet just published by the Atlas Portland Cement Co. It contains interesting instructions relative to the formation of highways and is profusely illustrated. It should be in the library of everyone interested in this work or in the delivery of materials for road work as it contains a number of tables showing actual costs of delivery. W. T. Chollar is manager of the highway department of the Atlas company.

The Portland Cement Association has issued a pamphlet entitled, "Why Build Fireproof?"

The March issue of "Leschen's Hercules," house organ of A. Leschen & Sons Rope Co., St. Louis, Mo., contains a very interesting article on concrete construction as performed in Cincinnati high school buildings.

"Federal Traffic News," house organ of the Federal Motor Truck Co., Detroit, Mich., contains, in addition to many illustrations of motor trucks in actual use, an exceptionally interesting picture of Faneuil Hall and Market at Boston, Mass.

The plant of the Western Indiana Gravel Co., at Lafayette, Ind., is interestingly described and illustrated in the March issue of "Webster Method," house organ of The Webster Manufacturing Co., Tiffin, Ohio.

**You Should Write Us for the "WHAT, WHY and HOW" of "BOSTWICK" BUILDING METAL GOODS**

**BOSTWICK**

It contains interesting selling talk that will enable you to cash in on present conditions in the building industry.



You may not know it, but "Bostwick Truss-Loop" metal lath is your one best bet for the 1917 season. Why?

**ASK US**

**THE BOSTWICK STEEL LATH COMPANY, Niles, Ohio**

Tell 'em you saw it in ROCK PRODUCTS AND BUILDING MATERIALS

The market place of the building material industry. Employment department, machinery wanted and for sale, etc. If your wants are not answered in this page, write a letter to this office.

**THE FRANCIS PUBLISHING CO.**  
537 S. Dearborn Street Chicago, Illinois

# THE BOURSE

Advertisements will be inserted in this section at the following rates:

For one insertion.....25 cents a line  
For two insertions.....45 cents a line  
For three insertions.....60 cents a line  
Eight words of ordinary length make one line.  
Heading counts as two lines.

No display except the headings can be admitted.

Remittances should accompany the order. No extra charges for copy of paper containing the advertisement.

## EMPLOYMENT WANTED

Quarry Superintendent. Ten years' experience; now employed; best of references. Address Box 1194, care ROCK PRODUCTS AND BUILDING MATERIALS.

Position Wanted—Superintendent of Quarry, Crushing or other plant. Several years as superintendent of large quarry. Experienced office and salesman. Will consider any kind of position with future. Reference. Address Box 1191, care ROCK PRODUCTS AND BUILDING MATERIALS.

WANTED—Position as quarry superintendent or general manager. A thoroughly competent quarry operator of long experience desires position where knowledge and ability are factors in economical operation. Will only consider contract on tonnage basis, or salary and bonus. Excellent references. Address Box 1168, care ROCK PRODUCTS AND BUILDING MATERIALS.

**CONNECTION WANTED**  
With business institution in capacity of treasurer or assistant manager. Can qualify and give best of references as to character and ability. Especially interested in the possibility of growing with the business and acquiring a working interest. Experience during the past four years includes handling financial matters of present employer, together with general charge of office force of from ten to fifteen clerks. Twenty-nine years old; single. Address Box No. 333, care ROCK PRODUCTS AND BUILDING MATERIALS.

## FOR SALE

- 1—B & W Water tube boiler, 250 H.P.
- 1—Ball automatic engine, 250 H.P.
- 1—Cochran receiver-separator, 6" connections.
- 1—Fairbanks rope drive complete, 1" rope with two 42" dia. five groove sheaves.
- 1600 ft. 1" new transmission rope.

Above all in good condition. Taken out on account of installing electric power.

**ROCK CUT STONE COMPANY**  
531 Union Bldg. Syracuse, N. Y.

**Paper Bags**  
of  
**Quality.**

For All Purposes

**The Jaite Company**

Boston, Ohio

Strongest, Most Flexible

**A 2 Cent Stamp**  
Will Bring You the  
-Latest Booklet on

## Mortar Colors

Written by our  
Mr. P. B. Edridge

**CALVERT MORTAR COLOR WORKS**  
Warner & Wooster Sts. Dept. R, Baltimore, Md.

## MACHINERY FOR SALE

**FOR SALE**—Tube Mill, 5'x22' Silex Lining, made by Power & Mining Co. Good condition. Bay State Brick Co., Indian Orchard, Mass.

**FOR SALE**—One Zagelmeyer Cast Block Mould 8x8x16, 30 Block, Steel Car, Rock Face with attachments for End and Half Blocks. One U. S. Standard Junior Tamp Block Machine 8x8x16, with full set plates for Rock, Panel and Plain Face, and fractional Blocks—three hundred pallets.  
W. R. Lewis, Rockford, Ohio.

**FOR SALE CHEAP**—Drag Line equipped with Clyde three drum hoist, twin 9x10 Engines, 150 pound steam pressure boiler, all in good condition; used three months. Mounted on timber construction which travels on rails. Must be seen to be appreciated. **BATTIES FUEL & BUILDING MATERIAL COMPANY**, Grand Rapids, Mich.

**FOR SALE**  
1—20x42 Filler & Stowell Corliss Engine.  
1—20x42 Vilter Corliss Engine, Rope Drive.  
1—18x42 Allis Corliss Engine.  
1—16x36 Allis Corliss Engine.  
1—14x36 Nordberg Corliss Engine.  
1—12x28 Allis Corliss Engine.  
1—16x24 Atlas Slide Valve Engine.  
2—150 H.P. Butt Strapped Triple Riveted Boilers.  
2—80 H.P. Butt Strapped Triple Riveted Boilers.  
Hoisting Engines and Pumps of all sizes and makes.  
Address **MERTES MACHINERY CO.**, Milwaukee, Wis.

## PLANTS FOR SALE

**FOR SALE**—2 Second-hand Kent Mills. Address Box 1195, care ROCK PRODUCTS AND BUILDING MATERIALS.

**For Sale**—Complete stone crushing plant, engines, boilers, crushers, drills and storage bins in first class condition. Large supply of stone, good track connections and excellent market. Address Box 1197, care ROCK PRODUCTS AND BUILDING MATERIALS.

**For Sale**—Silica Sand Plant, with established trade, manufacturing sand for steel furnace bottoms, steel casting, heating furnaces, and motor or track sand. Capacity 80 to 100 cars per month. On reasonable terms. Apply to Geo. M. Harton, Room 910 Berger Bldg., Pittsburgh, Pa.

**For Sale**—STONE CRUSHER PLANT, Complete Equipment, Buildings, Engine, Boilers, No. 6 Gates Gyratory Crusher, Ingersoll & Sargent Air Compressor, Hoisting Equipment, Screens, Elevator, etc. Only operated six months. William Burnside, Bellefonte, Pa.

## SILICA SAND PLANT

*For Sale Cheap*

Practically inexhaustible supply of silica rock located on New York Central R. R. at Hartford, Trumbull County, Ohio. Fully equipped plant with daily capacity of 150 tons of silica sand suitable for glass, motor, steel casting and furnace bottoms.

This offers a rare opportunity for one who understands the sand business, as all equipment is the best money can buy and the plant in first class condition, and everything can be bought for about

**One-Fifth Its Actual Value**

If interested write or inquire of the Hartford Stone Co., Youngstown, Ohio.

## BUSINESS OPPORTUNITIES

**For Sale or Lease**—A fine quarry site on main line of Southern R. R., 15 miles south of Danville. Good town around it. Crushed stone in demand. Address C. J. Wariner, Ruffin, N. C.

## MACHINERY WANTED

Wanted—1½ or 2 yard drag line outfit, 500 foot span and an electric hoist for same. Address 748 N. 40th St., Philadelphia, Pa.

**Locomotives, Steam Shovels, Cars, Locomotive Cranes, Stone Crushers, Air Compressors, Hoisting Engines, Grab Buckets, Etc.**

We are headquarters for dependable "used" equipment and solicit your inquiries

**WM. B. GRIMSHAW CO.**  
1048 Drexel Bldg., Philadelphia, Pa.  
DEALERS IN "USED" BUT "NOT ABUSED" MACHINERY

## "RAILS"

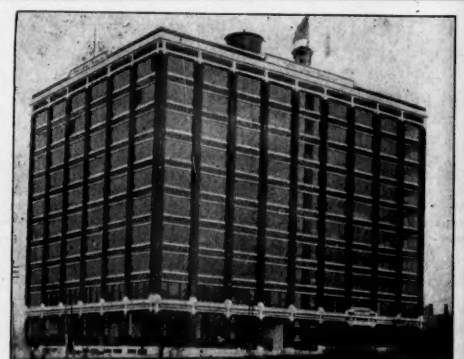
All sections of new and relay rails in first-class condition. Splice Bars, Frog, Switches and Spikes also carried in stock. We purchase abandoned plants and cheerfully quote prices on any material that you may have to dispose of.

**M. K. FRANK, Frick Bldg., Pittsburgh, Pa.**

## Anchor Brand Colors

**For Mortar, Cement and Brick  
Brown, Black, Red and Buff  
Strongest and Most Durable**

Manufactured by **C. K. Williams & Co.**  
Correspondence Solicited Easton, Pa., U. S. A.



Ford Motor Building, Minneapolis  
Kees & Colburn, Architects, Minneapolis  
Spady, Albee & Smith, General Contractors, Minneapolis

A Carload of

## Cabot's Mortar Color

(BLACK) WAS USED IN THIS BUILDING

This is what users think of it:

Winnipeg, Manitoba, January 20, 1915.

Dear Sirs: I have had a great deal of experience with different Brands of Mortar Colors, trying to get one that would have the strength to overcome the burning nature of lime, and have found Cabot's Mortar Colors far superior to any other in this respect. Besides, Cabot's Mortar Colors, being in a "paste" form, mix readily with the mortar and do not form into little balls like dry colors, and naturally penetrate into the pores of the mortar, making a permanent color. I am convinced that this color is worth at least twice as much as others on the market.

Yours very truly, (Signed) FRED HINDS.

Send for prices on the Strongest, Most Uniform, Easiest to Mix and Most Lasting Mortar Colors made.

**Samuel Cabot, Inc., Manufacturing Chemists, Boston**  
1133 Broadway, N. Y. Makers of 24 W. Kinzie St., Chicago  
Cabot's Creosote Stains, Old Virginia White, Cabot's "Quilt," Conservo Wood Preservative, Dampproofing, Stucco and Brick Stains, etc.